

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

PLEASE STAND BY. THE EVENT WILL BEGIN SHORTLY.

KEVIN RICHMOND:

Hello, good morning everyone. This is Kevin Richmond. To describe myself, I am a white, gay man. I am serving in the capacity of interpreter coordinator for this convention.

Thank you so much for your attendance. I would like to go over some housekeeping matters when it goes to interpreter access. When a speaker takes the stage, please identify yourself for so the interpreter can give a description of who you are to the deafblind consumer.

In addition to that, please speak at a moderate pace. Also, allow time for the interpreters to switch or alternate. You will notice the interpreters on the platform will be alternated as well as once that are seated in the audience with the deaf blind consumers.

Please moderate your pace to allow time for that alteration. Also, we are looking for clarity. That is the ultimate objective here.

Alright? Thank you, everyone. And enjoy the rest of your day. If there's any questions, you can come see me at the booth in the back.

JULIA DUNNING:

Hi. Good morning! Hello! (Laughs) Are we ready?

SPEAKER:

Yes!

JULIA DUNNING:

Hello, hello, hello. Welcome! The USH2022. The Usher Syndrome Coalition's 14th, I will say it again, 14th Annual Connections Conference!

(Applause)

JULIA DUNNING:

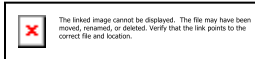
Yes! That deserves a huge round of applause! Or what I like to say, a thousand days of awesome! We have been planning for three years for this event!

Three years! My name is Julia Dunning. I am mostly known as Bella's mom. But, I am Julia Dunning.

I am the Usher Syndrome Coalition Program Coordinator. For today, I will be your MC, your host for this very, very special event.

As I said, it has been three years since USH community has been able to gather in person. During that time, I do not need to go into it, we have had some very unpleasant times. And some amazing times! I hope a few more rainbows than downpours. We cannot stress how important it is to gather as a community, as an USH community, as a family.

I am so happy to be here today with all of our staff, our board members, past and present. Lane McKittrick, are you in the room? Our Chair is here today.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

We are happy to thank our speakers, our volunteers, sponsors, exhibitors, partners, including the on-site partners. I am especially happy to be here with you, in person, and for the first time virtually.

One of the amazing things that came out of COVID: we are able to connect with our family around the world. So, let's start the show! The first thing we are going to do is a tiny bit of housekeeping.

I would like to thank our Platinum Sponsor ProQR Therapeutics! A round of applause for them!

(Applause)

JULIA DUNNING:

Andy Bolan, it has been amazing working with you. Our Innovation Sponsor at Atsena Therapeutics. Our Silver Sponsor, Edigene.

Our Bronze Sponsors, Advanced Bionics, Sensorion T-Mobile Accessibility. Akouos, Cochlear, MedEL... And our Promotional Sponsor's Leader Dogs for the Blind.

Big round of applause for everyone! Thank you!

(Applause)

JULIA DUNNING:

A special thank you to the family sponsorship sponsors... 32 participation attendees and virtual registrants. We cannot do it without you!

Thank you to the EveryLife Foundation for Rare Diseases for their translational support, for their rare giving tools and resources grant.

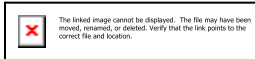
Thank you to ClearMask for providing us with their new transparent surgical masks. My daughter and son and I have been explaining during registration, they are fully transparent. They have a tight and secure fit. They are antifog, which is kind of amazing for kids who, as you know, lives through almost 2.5 years of trying to understand their speech therapist, parents, friends, behind masks.

Thank you to ClearMask for making these amazing masks. Brand-new, they are wonderful. They are great!

We are grateful to our USH partners. The USH Society is giving a face and voice to people who are on ground here to the Usher community through photo and art. Evan McGlinn, a regular contributor to the New York Times, is here today to take portraits of kids and adults with Usher syndrome to help share your story to the world.

If you have not already, be sure to have your photo taken for the "Shine a Light Usher Syndrome" campaign. Nancy is there in the back. Nancy, big wave.

You can find her and she will help with that. Just a quick reminder, we are using a virtual platform for today's event. Today's content will be streamed to our virtual attendees on the



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

platform.

Hello, virtual attendees. We sent out to the link to join the platform along with instructions at the beginning of the week. Platform will act as your program.

We have added all sessions, speaker and sponsor information to this platform. Please use the platform as a great way to engage with everyone, including the virtual attendees.

While you're at it, there is a chance to win a few gift cards over the course of the event. One way to be able to get a prize is by participate in the Usher Family Game on the platform. The person by Saturday afternoon who wins the most points will win a gift card presented by ProQR Therapeutics.

For those of you using interpreters and the hotel tells us to evacuate, we will be using the universal symbol of an "X" drawn with a finger on the back. You will then receive further information.

One of the most important roles of the Usher syndrome coalition, is to build this community. Researchers have told us that, families have told us that, and individuals living with Usher syndrome have told us that.

If you or your loved one with Usher syndrome is not yet in our free and confidential USH Trust, please send them to our table in the back and sign up. The registry is our most powerful tool for building the community.

Nancy, where are you? Nancy O'Donnell. OK. Find Nancy, sign up. It takes a couple of minutes. Like we said, it is our most powerful tool.

USH Ambassadors. One of our other great resources is our growing core of ambassadors. These people are your local contact for the coalition. We currently have 45 USH Ambassadors in eight countries.

We continue to grow our ranks. You can check your website to see if you have a local USH ambassador. Some of them are here today.

Can you quickly stand up so we can see the USH Ambassadors in the room? They are in different states, different countries. And they are amazing!

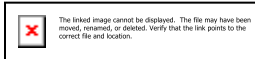
(Applause)

JULIA DUNNING:

You can stop by the coalition's table in the back of the room to make sure you are in USH Trust and to learn more about the ambassadors.

We know it has been a long time... We know it has been a long time since we have been altogether. This can get a little overwhelming. We have a space you can go if you need a break from the large room and step away from the noise.

Southpark AB is a quiet room and please feel free to go there anytime throughout the day.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Throughout the day, different members of the USH community will be introducing our speakers. For example, we have Gavin and Ethan who will be our first people to introduce our speakers. For the rest of you who have been asked to help with this job, just a little bit maybe before the presentation. If you can come up and meet me to the right of the stage, that would be amazing.

And it is time to give away our first prize of the day! Sponsored by ProQR, to someone who is here this morning. Do not worry, we have all of our attendees in a bucket.

And at the end of the day, or sometime during the day, you can find our event planner Sarah. Sarah are you in the room? She will give you your gift card. She is around. I will dig in and give you the first name. It is Hannah Figen.

You are in, Hannah. Congratulations!

I'm going to ask you to give me a couple more minutes. I'm going to do the hardest part of the housekeeping this morning. I'm going to introduce Krista Vasi.

In 2008, Mark Dunning and I, Mark is my children's father. Needed to hire an individual to run a small foundation that we had established in 2002, called Decibel. The Decibel Foundation provides educational resources for deaf and hard of hearing children in Massachusetts.

It is almost 20 years old. Decibels was growing rapidly. We needed a leader. Additionally, around that time, we learned that our daughter Bella had USH Type 1B... Centered around Usher syndrome became a priority.

We needed a leader for deaf schools and someone to help start a new organization.

I immediately bonded with this young women. That we decided to hire. As we are both Syracuse alumni. She was an easy higher.

We were all amazed with her enthusiasm and intelligence. I can go on and on about Krista, as she is truly beautiful, inside and out. My family fell in love with Krista.

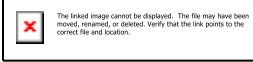
She soon became a part of our family. My children nicknamed her Krista sista around the house. My Boston accent came out.. The Decibels... I have watched Krista navigate life, falling in love, buying a home, marrying, having children, all while building the coalition into this amazing organization that it is now!

I have had the privilege to be in Krista's life for the past 14 years. So, it is with my greatest pleasure that I introduce to you, to my quote unquote daughter, maybe sister, we will go with daughter. And one of my bestest friends. And the reason you are here today, the director of the USHER coalition. Please welcome Krista Vasi!

KRISTA VASI:

Thank you, Julia. I knew you were going to make me cry. Thank you very much, Julia. Good morning, everyone. As Julia said, I'm Krista Vasi.

I'm thrilled to formally welcome you all to the start of our 14th annual USH Connections



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Conference, USH2022!

We have an exciting program ahead of us, with this morning full of research updates from distinguished members of the scientific community, and an afternoon where we'll hear from a variety of people from the Usher syndrome community, sharing their perspectives, experiences and resources that are available to you. Please also be sure to watch the on-demand presentations that we have on our app. There are a lot of really important research updates on multiple subtypes and more.

Some of you may know Julia's daughter Bella Dunning. Bella was the first person I met with Usher syndrome when she was just 8 years old. She became like a sister to me, like Julia said, and since that time I've met so many others in this community that now feel like family to me.

When Bella was diagnosed with Usher syndrome when she was eight, she inspired a small group of people to envision the Coalition as you know it. I was fortunate to join that team shortly after the Coalition was founded in 2008, and this was at a time when it was really difficult for a family diagnosed with Usher syndrome to connect when I started swimming with others who understood their challenges.

This was also a time when the few researchers working on understanding Usher syndrome in order to develop treatments were often working in isolation. So, the Coalition was born out of the need to bridge the gap between these researchers working tirelessly towards treatments and the families and individuals living with Usher syndrome.

I have personally had a hand in planning all 14 of these conferences we have held across the country, internationally, and virtually, witnessing as over 1200 people have come together to learn, to share, and to grow. I was actually stunned but not surprised when I looked that number up the other day. The Coalition exists to connect the global community, and that number shows that we are succeeding.

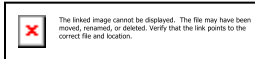
These conferences have made such an impact on me, and I know on you as well. I have seen the change that comes over someone when, for the first time, meet another person with Usher syndrome, someone who 'gets it'.

I have also witnessed these connections become lifelong friendships. I sincerely hope that all of you here today, both in this room and virtually, get to experience that feeling.

I feel so fortunate to get to lead an organization like the Usher Syndrome Coalition. The work that I do does not feel like a job. This community is part of my heart. I knew from a young age that I wanted my life to be about connecting people. When I first started with the Coalition, that meant connecting well with each other, connecting newly diagnosed families and adults with information and support, and connecting the community to help through research progress.

From the beginning, it has also been able to connect to all with clinical trials and eventual treatments that benefit each and every one of you of every Usher subtype, at all ages.

That goal is starting to become a reality. It's becoming a reality thanks to one of our greatest resources: the USH Trust registry. The USH Trust is the largest international Usher syndrome database in the world. The registry was created in 2011 in response to the urgent message we



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

were receiving from the scientific community: researchers are not in touch with enough people with Usher syndrome. It was created to connect the community to research and ensure trials are not delayed due to a lack of potential candidates.

That is happening as we speak through our USH Trust partnership with ProQR Therapeutics, as we support their clinical trial enrollment for the first ever final stage trial specific to Usher syndrome.

The USH Trust is one of our most vital tools, and it was built by a man named Mani Iyer. Mani is part of an esteemed group of people who have gone above and beyond to serve the Usher community. He is also a dear friend of mine. This brings me to the real reason I'm in front of you all today.

My friend Mani, who is sitting right there with his wife, Surekha, is warm, witty, and incredibly clever. Mani lives in Massachusetts and was diagnosed with Usher Syndrome Type 2 at age 28. Mani was born and raised in Mumbai, India. He worked as a software engineer for 30 years.

Mani also recently received his Master of Fine Arts in Poetry, and a compliment I was honored to witness in person.

Over 10 years ago, Mani volunteered to build the USH Trust to meet the urgent need expressed by researchers. With his declining vision, Mani literally built it by zooming in on the screen, writing the code character by character.

Words cannot express our gratitude for Mani's contributions to the Coalition into our community. Thankfully, we have more than words today. I am honored to present the Foresight Award to Mani Iyer for his untiring dedication and commitment to the Usher syndrome community.

The Coalition's Foresight Award exists to recognize people like Mani who have made a particularly significant impact on the work we do and the mission we aim to achieve.

Mani was recently asked in an interview by ProQR: Having been there at the start, how does it make you feel that the USH Trust registry is helping people get into trials?

Mani's response was "I feel very proud, and I like to think the registry is a foundation for younger generations being able to find treatments which will mean they never go blind."

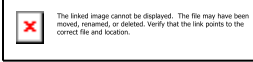
By creating the USH Trust, Mani embodies this award. His foresight to build the registry come at a time when research was in its infancy, first created hope and is now actively supporting research toward treatment. There are many more clinical trials on the horizon, and the USH Trust will seek to find and connect the 400,000 people living with Usher syndrome worldwide, person by person, next to Mani.

Mani, will you please join me and receive your well-deserved award?

(Applause)

MANI IYER:

Thank you to the USH Coalition Family that includes Krista, Julia, and, of course, Mark Dunning.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

I can remember the day when Mark and I met at my house, and we decided that the registry was the way to go. The best part of it was Mark just gave me all the freedom. He just told me, "Do whatever you want." We would touch base every month.

To me, that was the best part of it. In my professional career, nobody told me to do whatever I wanted.

(Laughter)

MANI IYER:

So, I had fun. I built this whole registry in isolation, in a dark room, because the glare was bothering me, and it was a labor of love. Thank you, thank you. This one is for you!

(Applause)

ETHAN:

Hello everyone, good morning! My name is Ethan, this is my brother, Gavin. We are student ambassadors of Ava's Voice. It is our pleasure this morning to introduce Becca Meyers, the keynote speaker.

Becca has been somebody that we looked up to as a role model because of her success in Paralympic swimming, as me and Gavin have our eyes set on Paralympic games in Paris. Also, because of her commitment to spreading awareness of the Paralympic community and shining a light on the inequities of the disability community.

I will let Gavin talk about how she embodies the motto, "Dream it, believe it, crush it."

GAVIN:

Well! Becca is a 3x Paralympic Gold Medalist, 6x World Champion Gold Medalist, and holds 23 American Records. And, if that's not enough, 10 world records. She won all these awards while recently graduating from Franklin and Marshall College. Becca has shown us all that having Usher syndrome does not limit you, and encourages everybody to find depression and not give up.

I would please like to welcome Becca up to the stage. Keep crushing it.

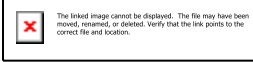
(Applause)

BECCA MEYERS:

Good morning, everyone! I'm so excited to be here in person with you at this year's USH Connections Conference. Welcome! It has been a tough couple of years for all of us, but I am so excited that we can finally gather in person and virtually to celebrate each and every one of us today.

I wanted to start off with a quote that many of you may already know from Helen Keller: "Alone, we can do so little. Together, we can do so much."

The reason why wanted to start off with this quote is because together, the Ushers community, a very unique community, our community — together, we can come together, lean on each



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

other, and learn from one another and achieve great things. Together, we can break barriers, stand up for our dreams, and achieve big dreams.

For those of you who don't know who I am, I am a three-time gold medalist, two time Paralympic swimmer, multiple world record holder, as well as a recent graduate of Franklin Marshall College — with honors, I might add.

Swimming allowed me to be who I am despite my disabilities. Growing up, I was often known as "Becca, the swimmer" not "Becca, the deaf-blind girl." I loved how my passion for swimming also gave me my identity in the world.

Swimming also gave me the ability to disconnect from the world, to forget about my disabilities for a little while after a long day. It taught me to have confidence in myself and to believe that I can achieve big dreams.

When I started swimming, I was not the greatest swimmer. I only swam because I loved it. But, because I practiced every single day, I grew to be better and better. It was my outlet.

So, I encourage you to find your outlet. What brings you joy? It does not have to be for a gold-medal. It has to make you happy and give you confidence in yourself.

I was diagnosed with Usher syndrome Type 1 at age 4. My life has never been normal. With Usher syndrome Type 1, I was born completely deaf, and I have retinitis pigmentosa. I wear two cochlear implants that allow me to talk with you here today. I navigate this fast-based moving world with either my seeing-eye dog or with my cane, and occasionally, with a human guide.

Along with being deaf and blind, Usher Type 1 also causes balance issues. My balance is off, and I walk with a wide gate. With my RP, I have very narrow tunnel vision, about a 5° field of vision, and I have some holes in my central vision. And one day, I will go completely blind.

However, I am optimistic because of donors and researchers like some of you here in the audience today who are passionately working on finding cures for Ushers every single day.

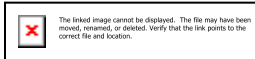
When I was 12 years old, I started googling motivational quotes. It was more to motivate me for swimming but also help me cope with my disabilities. I would print out these motivational quotes and tape them to the walls of my bedroom. I love reading these positive, motivating quotes before falling asleep every night.

What I was at swim practice, my ears were off. I never really heard the negativity in the water. I was always thinking positively. I made as a part of who I was as a swimmer and as a person.

To this day, I still Google positive quotes because I like finding positive thoughts and feeling positive thoughts. Despite my challenges as a deaf blind person.

According to my parents, since day one, I have been fighting to survive all of life's challenges. When I was born, I had the umbilical cord wrapped around my neck three times and did not breathe right away.

Eventually, I did breathe. But, I had to fight. I have had to fight to figure out what it means to be



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

deaf and visually impaired in a world that was not built for people with disabilities.

However, growing up, technology, society, daily life, things have advanced and stuff has gotten easier. There is more awareness and compassion towards people with disabilities.

Life is more accessible today than it was 30 years ago. Or so I thought. Last summer, after applying for the Tokyo Paralympic Games, I was denied a resource that would have allowed me to compete in my third Paralympic Games.

I was denied a reasonable accommodation of a personal care system, a PCA. Or, often known in the deaf blind community, support service provider, SSP, that I needed in order to be successful at the games. For me, in order to feel safe and confident to be able to be to the best of my abilities, I need a dedicated SSP to accompany me on my travels.

This is especially necessary for me in new environments, such as Tokyo and the Paralympic Village. I trust my SSP to be my eyes and ears in new environments.

Since 2017, I have been given permission to have a person of whom I trust to assist me at all international swimming competitions.

This accommodation allowed me to feel safe and confident so that I could then be able to compete to the best of my abilities, for which I've been training so hard for. However, last summer, with COVID restrictions, I was denied this accommodation that had been put in place for the past five years.

Instead, I was told that there would be, "one PCA for 34 swimmers, and I could rely on that person when needed." As we know, these games were unique because of COVID restrictions.

Such as mask mandates, social distancing, etc. How would I be able to communicate with people who were wearing masks and 6 feet away from you? A dedicated PCA was essential and even more critical to have by my side than in the past.

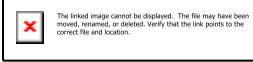
Not allowing me to have a dedicated PCA was a decision that was made not by me but for me. That was not acceptable. Due to the pandemic, an unnecessary barrier was put in place so that I could no longer have access to the basic tool I needed in order to be successful.

That was a denial of my basic human rights as a disabled person. That is why I said no to attending the Paralympic Games. I felt that I needed to speak up, so the next athlete with disability would never have to make the same agonizing decision I had to make.

Enough is enough! As Paralympians, we train as hard as our counterparts, the Olympians. We deserve the same quality and safety nets that our abled-bodied counterparts have and continue to receive.

I am proud that I stood up for my rights as a deaf-blind person, a person with Ushers. In society, we need to trust that a person with disabilities knows what they need in terms of accommodations in order to be successful.

We need to listen to them. I hope my story will help you and your loved ones fight for equal



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

access when necessary so that you may enjoy life to the fullest. We all deserve to find that one thing in life that makes us feel free and to go for it.

When I shared my story last summer, the response I received was overwhelmingly positive. I received messages from so many people that were outraged. They were supportive and they wanted to take action. I was receiving messages from people all across America, from Australia, the United Kingdom, Germany, South America, and even India.

The support was worldwide. People from all different backgrounds came together to show their anger because I was denied a basic accommodation in the year 2021. We came together and connected as a community.

"Community" — that term is so critical as to why we are here today. We are here today to support each other, to lean on each other, to learn from one another, to see ourselves and each other.

We are all at different stages on this journey with Ushers. Some of us may have just received our diagnosis. Some of us are in denial, and some, like myself, are finally realizing and trying to accept what it truly means to be deaf-blind.

I do know this: I'm going to be OK. Because of my support system, my community. Having Ushers has shown me how important it is to lean on each other. Lean on your support system: friends, family, members, neighbors, and your USH community.

Vocalize your needs and feelings because your support system cannot read your mind, and they want you to be able to enjoy all that life has to offer. They want you to have access to all of the tools that you need. Remember, right now is the best time to be living with Ushers because of technology advancements and research being done.

I encourage you to take time to explore your resources and use them to the best of your ability. You are the best judge of what you need in order to enjoy every single day that life has to offer.

Create your own path. Trust yourself. Be proud of who you are. I know I am.

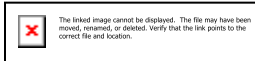
As of this past year, I officially retired from swimming. I felt that I could no longer support an organization that did not support me and my rights.

It broke my heart to leave swimming. I was successful. I was proud of what I accomplished in the pool.

But, as a person with disabilities, I felt I could never allow anyone to tell me what accommodations I need.

So, what is next for me? Right now, I am discovering who I am as just Becca. The journey is only just beginning, but the future is bright. Please enjoy today!

Listen, ask questions, lean on each other, take it all in. Enjoy each other's company and this unique community that we like to call Ushers.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Remember, you are incredible. Alone, we can do so little. Together, we can do so much. Thank you!

(Applause)

ELISE FAUCHEAUX:

Thank you, Becca. My name is Elise Fauchaux. I am a parent to Hunter, who is 11 and has Type 1C. My husband and I have an eight-year-old, Harrison, and a six-month-old hot off the press baby girl...

I have had the privilege to serve on the coalition's Board of Directors and for a few years as well. I hope you all benefit from this we get as much as our family has over the past 10 years.

I have been knowing Dr Lentz for probably around 10 years now. She and Suzy Trotochaud are a force to reckon with. They are two of the most dedicated people I know working towards finding a cure.

Doctor Jennifer J Lentz is Associate Professor of Otolaryngology, if I pronounced that correctly, and Biocommunications. a member of the Neuroscience Center of Excellence at LSU Health in New Orleans, Louisiana. Dr Lentz is also adjunct in the Department of Ophthalmology and Genetics.

The overall goals of her research are to understand the mechanisms of Usher syndrome. And to develop therapeutic approaches to prevent or cure the deafness imbalance and blindness associated with this disease.

Currently, her lab targets mutations in the USH1C gene with antisense, gene, and CRISPR-based therapies using cell lines and a knock-in mouse model of Usher syndrome Dr Lentz also conducts several Natural History Studies.

Both retrospective and prospective. With Usher syndrome patients, to better understand the molecular epidemiology and natural, clinical, and socio-demographic histories of Usher syndrome.

Susie Trotochaud is the mother of two children with Usher syndrome. And the executive director of Usher 2020 Foundation.

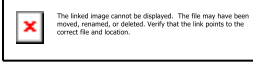
A nonprofit, funding research to find treatments to slow, stop, or reverse the degeneration of site caused by Usher syndrome and retinitis pigmentosa.

Let's welcome Jennifer and Susie.

(Applause)

SPEAKER:

Good morning. I am so happy to be here to meet new individuals and to reconnect with old friends. I want to first say thank you for taking the time and making arrangements to be here with us today.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

I want to take a minute to thank all of the interpreters in the room that are making it possible for us to connect. We scientists can get very excited when someone asks us to talk about our work.

So, we are going to work hard to slow down so that we can connect and tell you about our research.

Today, I'm going to talk about new therapy development in Usher syndrome Type 1C models. First, I'm going to check that I have the slide... Yep, OK!

So, in one slide, I'm going to describe the basics of Usher syndrome. There is a lot of information, and even new information, so if you don't care about a topic you're interested in or have questions, please reach out to us. We are very excited to meet you and connect with you and hear about your experiences as well.

So, Usher syndrome is an autosomal recessive genetic disorder. That means you have to have two copies of the mutation, one that you get from your mom and one that you get from your dad, in order to have Usher syndrome. The autosomal part means that both males and females get Usher syndrome.

The symptoms include hearing loss and vision loss together, and some individuals also have a loss of balance. We use the numbers, Usher Type 1, Type 2, Type 3, etc., to describe the severity of the symptoms and the age at which they might onset. So, they are a clinical diagnosis.

We use the letters, then, to denote which gene you have a mutation in that is the cause of your Usher syndrome. So, for example, individuals with Usher syndrome Type 1B have a Type 1 clinical course, so they were likely born deaf, have balance difficulties, and begin to lose vision or experience symptoms of vision loss around the age of 10, and the mutations that cause their Usher syndrome are in a gene called Myosin 7A. This is USH1B.

So, the numbers are the type, the clinical type, and the letters are the gene.

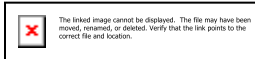
There has been a lot of progress recently and a new clinical category for Usher syndrome, a type 4, and also, the description of atypical and ultra rare Usher syndrome.

Still, there are individuals that have hearing loss and vision loss symptoms like Usher syndrome, but we do not yet know the genetic cause of their disease. So, there will be new types and new genes in the future.

Before I talk about our research specifically, I wanted to take a moment to talk about the typical path to progress in understanding the symptoms in Usher syndrome, the causes, and the development of new therapies.

Typically, this begins with observations in patients. So, it's very important for those of you individuals living with Usher syndrome to see your doctors. We learn about the symptoms that you have, when they begin, and how quickly they progress.

We then use this information to develop models of Usher syndrome, cellular models or animal models. We develop these animal models so we can do experiments on eyes and ears in Usher



syndrome. We also use these models to develop and test new therapies.

And then, once we have identified a therapy that works well in animals and is safe, we conduct research in individuals with Usher syndrome to test the new therapies. Sometimes, these therapies work pretty well like we had intended them to. Sometimes, they work well for some patients but not for all patients. So then, we go back to the drawing board, and we study those symptoms again in patients. We make sure we have the right models, maybe develop new models. Maybe we tweak the drugs again and test them again in patients.

The goal for those of us in basic science and clinical science doing research is to develop a therapy for each individual with Usher syndrome that works well for them.

So now, I'm going to talk a little bit more specifically about what we do in my lab. On this slide is a picture of the USH1C gene. It's a sort of roadmap. What is highlighted above and below this picture of the gene is a list of all of the mutations that we know of, about 50 that cause Usher syndrome. If you have any two of these, it can be the same mutation in both your copies from your mom or your dad, or it can be two different ones (one you got from your mom and when you got from your dad) that can cause your Usher syndrome.

In my lab, we focus on the 216 G>A mutation, which is the Acadian mutation, and Suzy, who is going to talk after me, focuses on the 91 C>T mutation.

The 216A mutation is a splicing mutation. That means it causes a change in the natural way that the gene splices. This is a process that happens where splicing proteins cut out portions of the gene transcript and then stitch it back together to make the final code for a protein.

The 216A mutation affects that process. The picture on your left shows correct splicing. The splicing machinery here is depicted as scissors. So, it finds the correct place and cuts out an intron in stitches it back together.

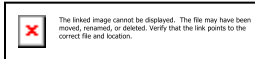
On your right, you can see the 216A mutation mislocalizes those splicing proteins, and the cut happens in the wrong place. That leads to an incorrect protein.

In my lab, we developed antisense oligonucleotides to target that 216A mutation and prevent wrong cutting, or aberrant cutting, and force correct cutting.

So, we developed a mouse model with the Acadian mutation. We knocked it into the mouse genome, and that might have deafness. They have much elevated hearing threshold. The mice also have circling behavior, which is indicative of a balance disorder. And, they have mildly reduced visual function. We use this mouse model to test new therapies.

When we treat the mice with the antisense oligonucleotides one time, we can restore their hearing and prevent their circling behavior. You can see in the video of the mice playing, the mouse running in circles is an Usher mouse treated with a placebo drug. So, an antisense oligonucleotide that is not targeted to the mutation, and he continues to circle.

The most-- mouse immediately to its right was treated with our antisense oligonucleotide, and he no longer circles.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

The graph on your right shows that we treat the mouse one time with the antisense oligonucleotide, that we improve their visual function for at least a year.

Now, I'm going to turn over the talk to Susie.

SUSIE TROTOCHAUD:

Hello, my name is Susie Trotochaud, and I am the director of the Usher 2020 Foundation. I'm not a doctor, like some of the speakers today, and I have no letters after my name. I'm just a mom of two young adults with Usher syndrome, specifically USH1C.

My husband and I started our foundation in 2012 with one goal, as was told earlier: to slow, stop, or reverse the degeneration of sight caused by Usher syndrome.

Our funding is focused on research and has got to support a number of programs, including the NAC Attack (?) study that has produced studies presented at this conference. I recommend you take time to watch that because that is an agnostic treatment. And also, the Natural History Studies out of Dr Lentz's lab and promoted other treatments as well.

First, I would like to give you a quick and simplistic overview of what gene augmentation therapy is. This is not to be confused with gene editing or other ways gene therapy is used to supplement treatments.

And apologies to all the scientists in the room, but as a layperson, this is how I see it.

In the most simplistic way, gene therapy is like a store that delivers its products — say, groceries... (Pause) Sorry... is like a store that delivers products – say, groceries – to its endpoint. In our analogy, the store is the lab where a mutated gene, as everyone with Usher syndrome has, is corrected.

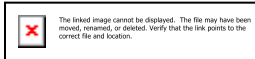
That gene is then packaged into and emptied out virus or vector, much as groceries are loaded into an empty truck. Just to be clear here, the virus has been rendered harmless of its original effects. It is now just a delivery mechanism.

The vector is then placed into the retina of the eye, just as the delivery truck might bring grasses into multiple homes. Once in the eye, the virus does what viruses do. It invades the cell and dumps its cargo. Now, the cells have corrected genetic code and should be able to make the necessary protein needed to mitigate the effects of vision loss caused by specific -- by a specific Usher mutation.

Over the past six years, through a consortium of researchers from around the world, we have created all the components for gene therapy programs for the USH1C mutation, including the truck, payload, and map.

The truck is the capsid. This came out of the work at Luke Vanderburg's lab at Harvard. We are using a novel capsid called ANC80. I would add that we are testing another commonly used factor as well. The payload includes the corrected USH1C DNA with what our scientists have concluded is the best isoform. I'm going to leave isoforms for another present Tatian.

Finally, our Consortium agreed to test two vector plasmids. I believe the promoters to another



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

presentation, but a simplistic, imagine that the vector plasmid is likely map used by the truckload. We are looking for the best map.

The only thing left to our simple five gene therapy analogy is the house, the delivery point. For this, we created a large animal model, specifically a pig. Pigs are good models for some representation of human anatomy, including the eye, although not as inexpensive as mice, but they are not as expensive as nonhuman primate, so they have certain advantages.

The pig model has robust hearing, vision, and balance characteristics, as can be seen by the paper published by our Consortium in March 2022. It also has a similar eye size to humans. This is important for getting dosing right before trial.

This has been a long, arduous process. We started with this program with the initial conception in 2013, and develop it of the animal model in 2017. Since then, are dedicated veterinary group has had to learn to work with, careful, and sustain animals that have the challenges of Usher syndrome.

We have an established herd at two locations, have completed safety studies of our gene therapy on non-diseased animals, and just yesterday, completed our first gene therapy surgeries on animals with USH1C. This was a big milestone for us.

I'd like to introduce you to one of our precious animals. I'm hoping this video works. This is a demonstration of some of the behavior testing done on our pig model. The first video will be a wildtype or unaffected pig going through an obstacle course, the second will be the USH1C-affected animal going to the same course showing visual loss that is already prevalent after seven months of age.

(Video plays)

SUSIE TROTOCHAUD:

This is the affected animal. We have a very aggressive timeline to try to get our gene therapy into the clinic. Which hinges on concluding our efficacy studies by the fall of 2023.

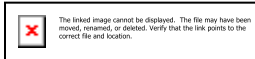
In the next year, we plan to be in talks with the FDA, to make sure we are following all of the regulatory requirements, begin creating clinical rate vectors and tox studies that can then be used in humans as soon as we have identified our lead candidate. We are well aware of the (indiscernible) that occurs as -- when preclinical studies move into the clinic. Believe it or not, we are almost through the easy part.

We are doing everything we can to overcome these obstacles and to continue to hope for the best. Dr Lentz and I would like to thank all of the people and organizations that have made this possible. Thank you to all of you for listening.

I would like to end with the wise words of Helen Keller, "optimism is the thing that leads to achievement. Nothing can be done without hoping." Here's to hoping. Thank you.

(Applause)

CONNER McKITTRICK:



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Hello, everyone. My name is Conner McKittrick. I have recently graduated from University of Rochester. Next month, I will be entering grad school for public policy.

I have a younger brother who is 14 years old who, like me, has Usher 1B. I'm glad to be here in the state. I have been given the distinct pleasure of introducing our next speaker.

Shannon Boye graduated with a PhD in Neuroscience from the University of Florida in 2006. She is now a tenure full professor and the Associate Chair or Chief of the Division of Molecular and Cellular Therapy in the Department of Pediatrics at the University of Florida.

The focus of her research is developing viral vector-based gene therapies for the treatment of inherited ocular disease. She has multiple awarded and pending patents emanating from her research program, and is actively funded by the NIH, private foundations, and pharma.

She is the recipient of several major awards including the Foundation Fighting Blindness's Board of Director's Award, the Gund Harrington Scholar Award, the ARVO Foundation/Merck Innovative Ophthalmology Research Award, and the ARVO/Pfizer Carl Camras Translational Research Award.

Since 2010, she has given over 70 invited lectures both within and outside of the USA.

She is also Founder, Director, and Chief Scientific Officer of Atsena Therapeutics, a clinical stage gene therapy company based in Durham, North Carolina.

Outside of her research, she is actively involved in the teaching mission of the College of Medicine at the University of Florida and is passionate about outreach/education outside the University. She routinely provides lab tours for visually impaired patients, hosts foundation meetings and educates patients about ongoing research being conducted to address treatments for their conditions. Post foundation meetings and educates patients about ongoing research being conducted to address treatments for their conditions.

Please welcome Dr Boye. Thank you!

(Applause)

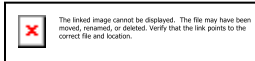
DR SHANNON E BOYE:

Thank you very much for that nice introduction. Can everyone hear me okay? I would like to thank the organizers very much for the opportunity to come speak today. I will admit, this is the first time I have gotten on a plane in about 2 1/2 years. It is nice to get back into the saddle again and to interact with patients who motivate me so much.

And also to see some of my favorite colleagues. I am here today on behalf of Atsena Therapeutics to talk about the gene therapy associated with Usher syndrome 1B.

If I talk too fast, some just yell at me, please, by all means.

This specific form of Usher syndrome that might lab at Atsena Therapeutics that is focused on is caused by mutations in the MYO7A gene, which we have talked about a little bit today. This is one of the more severe forms of Usher syndrome.



It is inherited in an autosomal, recessive fashion. As Jen mentioned earlier, that means you have to inherit a one mutated MYO7A from mom, and one copy from dad. This accounts for about 50% of all cases of all adult deaf blindness.

As Jen mentioned earlier, patients with USH1B be tend to be born particularly deaf and began to progressively lose a vision within the first decade. As I mentioned, this is associated with mutations in the MYO7A gene.

So, what cell type is to blame in Usher syndrome 1B? Well, a lot of the work we have done in my lab and others around the world have done, and now we are doing it at Atsena, implicates photoreceptors as the problem in Usher 1B, as in many other forms of Usher syndrome.

When you're looking at on the slide, is a cross-section of the human eyeball on the left. At the very back of that eye, is a very thin tissue. Despite its small size, it is quite mighty. There's a lot of retinal cell layers in the eye that perform a lot of different functions. At the back of the retina is the rods and cones.

Those are the cells responsible for converting a photon of light into an electrochemical signal that sends to your brain and processes there as vision. When the MYO7A gene is mutated, what happens is there is a misspelling in the gene. As a result, it cannot make the protein it is supposed to make, or it makes the protein that it has a funky shape and cannot do its job properly.

So, MYO7A is mutated. It cannot make the right protein. When the photoreceptors do not have that MYO7A protein, they become dysfunctional and eventually they will die off. They are lost structurally.

In this slide, I'm showing a bit of natural history of this disease of USH1B. On the right, you can see what are called optical coherence tomography, or OCT scans.

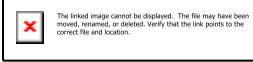
You can think of these like an ultrasound of the retina. Instead of using sounds to generate an image though, they use light. What this allows physicians to do is, to look as the retinal structure and patients over time and to follow the progression of the disease.

What we have done in this immature, is color-coded the photoreceptors and shades of blue. Up top is a normal patients OCT scan. So, no disease in this patient. You can see a very nice stretch photoreceptors across that entire retina, across that entire scan.

Whereas the bottom three of CT scans, show examples of patients with USH 1B. You can see that over time and this disease, you have a loss of retinal structure.

A lot of those photoreceptors, that starts in the peripheral retina and ultimately encroaches into the central retina until most patients are just left with a central island of photoreceptors in the very middle of the retina.

Those are the cone photoreceptors. Because of that, lots of photoreceptors at first, rod-mediated vision tends to be lost within the first couple of decades in USH 1B.



But really important is that, those central photoreceptors, those cones, can stick around for multiple decades. Patients tend to retain these islands of central photoreceptors even into their fourth decade. The bottom line here, what is really important for us as researchers, as team therapist, is that if the cells remain, then they can be a target for gene therapy.

We believe that USH1B, because of the maintenance of that central island of photoreceptors, that these patients are good candidates for gene therapy.

So, what is gene therapy? It's super scientific, but we can make it simple, just like Susie just did an excellent job of doing. Basically, it is correcting the underlying genetic defect. The bottom line is, what we are doing is, we are taking a healthy copy of Myosin 7A.

We are delivering it to the photoreceptor cells of these patients, the healthy copy of that Myosin 7A gene goes on to make a normal copy of MYO7A protein. Hopefully, that normal protein goes on to restore the function of those cells.

And ultimately restore vision to those patients. How do we get the patient to the photoreceptors? Susie talked about this a bit, but I have a slightly different although similar analogy. I like to call it the taxicab analogy.

So, we use a virus called AAV, adeno-associated virus. As Susie mentioned, this is a nonpathogenic, perfectly safe virus, that has been gutted of all of its native DNA. Really, we are taking advantage of nature.

What the viruses do really well is get into her nose, getting to ourselves, infect them, and then release their genetic information. We take it all of the bad viral DNA.

We replace it with a healthy copy of MYO7A. We then direct that virus to the photoreceptors, it infects them, and drops off a healthy copy of MYO7A. So, you can think of AAV of that virus as a taxicab. You can take of the gene, the MYO7A gene as a passenger inside.

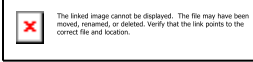
I am the cabdriver. I am directing where that gene passenger can be dropped off. One limitation in the AAV though, is it is relatively small.

It is a small virus that is only between 4 nm wide. That brings us to our problem. Houston, we have a problem. (I know we are in Austin. But, "Austin, we have a problem" would not make sense.) The gene is too large to sit inside a standard AAV vector. There is no way we can jam it in and overstep the virus.

So, we have to come up with an alternative solution. We have worked for years in my lap. Now, we're continuing this work at Atsena to develop a dual-AAV vector approach to deliver Myosin 7A to the photoreceptors.

So, it sounds difficult. But actually, if you boil it down, is pretty simple. What we do is, we take the larger MYO7A gene, we split in half. We deliver the front half via one AAV and the back via another AAV.

We then coincide those two AAVs into the same cell. They release their genetic information and be a complementary sequence, those two halves write each other. And go on to make the full



length MYO7A gene.

Which then goes on to make the full length MYO7A protein. And hopefully, restore function to the photoreceptor cells. On the next slide, I will show you all the video that I've seen at commission to sort of visually better depict what I just described.

Hopefully, it will cooperate and play for me. We need volume.

(Video plays)

SPEAKER:

(Away from mic)... Adeno-associated virus vectors have a limited passenger capacity and cannot be used to develop gene constructs larger than five (indiscernible). To address mutations in larger genes, dual AAV vectors are used. The coding sequence is split in half, with each half containing a complementary recumbent or genetic secrets to mediate recombination and recognition.

Each half is packaged in a separate AAV vector. Both co-interact the same target cells delivered to the front and backed sequences. Once both vectors have entered the nucleus and genetic tables are released, the respective halves of the delivered gene recombine to form a full-length construct that ultimately generates a functional mRNA and produces a full-length therapy protein.

(Video ends)

DR SHANNON E BOYE:

We have been working on this for a while now and have shown they are able to deliver full-length Myosin 7A in a variety of settings. This includes in cells in a dish, and photoreceptors of the mass retina, and most recently, in the retina of a nonhuman primate.

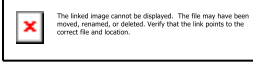
A subtle phenotype is correctable in these vectors in a mouse model of USH1B. We have unpublished data, but I thought it would be interesting to this audience even though my main focus is on the eye. We have shown that these dual vectors are capable of correcting vestibular function in a mouse model of USH1B. It's not the retina, but it gives us additional proof of concept that these dual vectors are effective.

And... I can't read the rest of my slide... I'm going to let you guys read that, and if I missed something, I will come back to it later. It's so small.

AAV comes in a variety of flavors, and each different flavor or each type of taxicab, is very good at delivering genes to certain cell tissue types. Certain ones are good at delivering genes to the eye or to the muscle, for instance. AAV is very malleable, and that means you can tinker with it and make it behave in interesting ways.

At Atsena, we have developed AAV.SPR, that stands for "spread", and you will understand why we needed SPR in a moment. This is very useful for delivering genes to the retina.

So, how do we get AAVs to photoreceptors? We use a surgical procedure called subretinal injection. This is a surgery where a needle is placed underneath the retina between the



photoreceptors and the RPE, and you can see in the cross-section of this eyeball that it creates a little place where the vector is placed. You are not detaching the whole retina, just a little bit.

In this experiment here, what I am showing you are pictures of the back of a monkey eye that received two subretinal injections of a first-generation AAV vector, one that we knew about years and years ago. It's driving a general gene, GFP, green fluorescent protein. We are not talking about MYO7A, just AAV delivering a green fluorescent protein.

You can see in the Week 1 image, the margins of the injections. That is the margin of where it was placed in the retina, and it is demarcated with a yellow line. Over time, you can see the GFP expression turns on, so the AAV is working, but it is only driving gene expression within the margins of that original subretinal injection.

However, our novel capsid from Atsena, AAV.SPR, has this really unique ability to spread well beyond the margins of that subretinal injection. You can see that GFP expression is lighting up the entire retina, not just confined to those original blebs.

We saw this, we thought, "Wow, this could be a really unique capsid for delivering Myosin 7A to USH1B patients."

The reason this is exciting to us is if you have a patient with a retina where only a tiny island of photoreceptors remain, you can understand there will be some hesitation to place a needle right under that very precious remaining island of photoreceptors. If we have a vector that we can place outside that precious region, but yet, it will still deliver a healthy copy of Myosin 7A to those cones, then we have a winner.

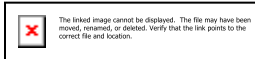
So, we asked that question in this experiment here. What you are looking at is a monkey eye that received three subretinal injections of just an AAV GFP, another green fluorescent protein experiment. The central retina of this monkey was not detached during its surgery, and after the monkey was sacrificed, we looked at visual sections. We visualized pieces of the retina taken from the central or peripheral.

The middle part is Zone 3, if you can see that. You can see that we had almost 100% of the photoreceptors in that central retina expressing GFP. Again, the central retina was not attached during the surgery. Yet, we're getting extremely efficient transduction or gene expression in the central photoreceptors.

So, more recently, we asked the more important question: can we deliver it Myosin 7A to the central retina of a clinically relevant species using these dual-AAV.SPR vectors?

This was a six week study. We looked at two different dual AAV platforms. I will get into it today, but we delivered two doses of 75 uL to these monkeys. We looked at Myosin 7A within the injection bleb as well as in the central retina, region called the fovea. In red, you can see MYO7A expression, and you can notice immediately that there is very robust expression of Myosin 7A both within the injection bleb as well as within the central retina. We were very excited by this result.

That is the first time that anyone has shown AAV-mediated Myosin 7A expression in a monkey retina. Very exciting.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

The next thing we asked: how much Myosin 7A are we making relative to the amount you see in a normal monkey? With the help of my wonderful former postdoc was sitting over there, Kate but we did a Western blot to probe for how much Myosin 7A was coming for our AAV versus how much was found in the normal retina. I won't get into how we differentiate that right now, but what we saw was a super physiological levels of Myosin 7A, meaning that our dual AAV vectors are making more Myosin 7A than even needs to be present in a normal retina.

That is great news from a safety standpoint because that means we can bring our dose down, which is always a better option inpatient. These dual vectors appear to be very efficient.

In summary, we have identified a novel capsid AAV.SP are that promote Myosin 7A expression both within the subretinal injection bleb as well as within the fovea, which is the area that we want to target. We can do that without surgically detaching this region of the retina, so that is really good news.

We know that we can drive full-length expression of Myosin 7A in physiologically relevant levels in a clinically relevant species. We see it is localized to the photoreceptors, which is the site of its proposed function, and we believe strongly that these dual AAV vectors show promise for the treatment of retinitis pigmentosa associated with USH1B.

Finally, I want to thank the team add Atsena Therapeutics, Pat Ritschel, Sanford Boye, Keni Fujita, and Mike Kelly. A special thank you to the past and present members of the lab, especially Kait. Thank her when you see her in the hallway. And also, the past sponsors of this project, including the Foundation Fighting Blindness and the National Eye Institute.

That's just an extra slide. Thank you very much for your attention!

(Applause)

NANCY CORDERMAN:

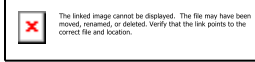
Hi, everyone. I am Nancy Corderman, the founder of the Usher Syndrome Society. I have two children who are living with Usher syndrome Type 2. The Usher syndrome raises public awareness of Usher syndrome through the portraits easy. We have a global exhibit, do film, do educational events, and also raise funds for research. This year, we committed about \$500,000 to support Translational Research Grants.

I am pleased to announce next Doctor Jeffrey Holt, who I have worked with for many, many years. He is a Professor and Director of Research in the Department of Otolaryngology at Boston Children's Hospital and Harvard Medical School. He is the chair of our Usher Syndrome Society board. He will be given updates on the three projects we are working on.

DR JEFFREY R HOLT:

Thank you, Nancy, for the introduction, and thank you all for your attention this morning. It's a real pleasure for me to be here to be able to share some of these updates.

So, in my role as Chair of the Usher Syndrome Society Scientific Advisory Committee, I would like to tell you about what we have been up to. The board of the Usher Syndrome Society are pictured here, and it has been really an honor to be able to work with this group to start thinking



about how we can develop new therapeutics for treating Usher syndrome.

So, we began this may be 1.5 years ago and started discussing the possibility of funding translational research. And so, through those discussions, we formed the Scientific Advisory Committee, which is pictured here. I am the chair of this committee. Shannon Boye, you just heard from, is one of the members. Bence Gyorgy is studies retinal disorders. Eliot Shearer is a clinician science at Boston Children's Hospital. Teresa Nicolson is at Stanford University and study zebrafish.

So... The initiatives, some of which are listed here, appear on the Usher Syndrome Society webpage. So, I'm going to focus on this one with the colorful-looking spiral. That's a cochlea, and you can see hair cells in green and neurons in red. This is one of the images from my lab.

But let me tell you about the funded research and the plans.

So, we generated what is called a request for applications that was circular throughout the scientific community. That was July of last year, and the goal was to find Translational Research Grant treatments for all forms of Usher syndrome. As Nancy mentioned, there was \$500,000 that was dedicated to this program.

So, we got 26 letters of intent from scientists around the world, and we narrowed it down to 11 that we invited to submit a full proposal. So, the Scientific Advisory Committee reviewed those proposals, and there were many good proposals there, but we selected three for funding.

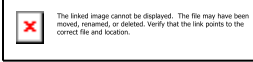
That funding began in January of this year, so we are just six months and to these projects. It is early days, but I would like to tell you a little bit about each of the projects.

So, the first project is -- the title of the project is "A screen for compounds that prevent or slow retinal, auditory, and testicular cell death in Usher syndrome. Was what this is being done at the Institute for Neuroscience at University of Oregon, and it is headed up by Monte Westerfield and his colleague, Jen Phillips, and they have two students were working on this: Eric Fox and Sara Buchner, who just recently graduated.

So, their idea is that genetic defects in Usher syndrome proteins lead to stress within the cell, and cell stress can eventually lead to death of the cells in the ear and in the retina. So, their goal was to identify drugs that are already approved by the FDA, the Food And Drug Administration, that can attack against cell stress and prevent cell death. So, by addressing this, they may be able to identify drugs already approved, and made be effective against multiple forms of Usher syndrome.

So, the second goal was to test these drugs that have been identified for their ability to prevent cell stress and death of hair cells and photoreceptors. So, they are using the zebrafish. You have heard about the zebrafish a little bit, but the zebrafish, I think, is actually a very good model because the sensory hair cells in the ears of the zebrafish and the retinal photoreceptors are actually quite similar to those of humans, and the genetics is also quite similar.

The zebrafish Usher proteins are all expressed, just like they are in humans, and many of the mutations generated in zebrafish cause the same set of symptoms. The other reason for using zebrafish is they are very expensive, so scientists can screen thousands of fish, that is much



easier to do that with a small animal that you can do much more quickly.

And so, for the project... So... Several medicines have been identified, and one that was found that improves the visual function. So, here are the data, just quickly to show you this. On the left, you can see normal visual function, and the fish carrying an Usher 1F mutation shows reduced visual function. When the drug is applied in the normal condition, showing safety or no change in function, that is the third column. On the far right, the Usher fish with the drug showed improved retinal function. This was an encouraging result.

This group also looked at the retina, which you can see right here, and looked at the photoreceptors to see if there was preserved numbers of cells. They counted the cells, and they didn't see a huge difference in this case, but the fact that the previous dataset showed there was an improvement in retinal function was encouraging.

So, their preliminary conclusion just six months into the project is that we do see -- Reducing cell stress can improve visual function in this zebrafish model of Usher syndrome. The next steps are to identify other medicines that promote cell survival. They also want to evaluate other medicines for other forms of USH. They tested on USH 1F, but maybe they can prevent cell death for multiple forms. And eventually, they want to evaluate this for hearing and balance in the treated fish as well.

The next project is called "Rescuing a common deep intronic USH2A variant by enhanced-deletion Cas9 genome editing." This is being done in Germany at the University of Tübingen with Susanne Kohl, her colleague Pietro De Angeli, as well as student, Stefanida Shliaga.

Their idea is a new form of gene editing can impair an USH2A mutation. This is the name of the mutation, they are hoping by repairing it editing that gene, you can remove the mutation and lead to healthy RNA production and healthy USH2A protein formation.

This particular mutation is fairly common. You have heard about exons. Exons are portions of DNA that code for the protein. When that protein is being made, the exons get spliced together to form a full length protein.

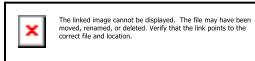
This particular mutation occurs in between exons in a region known as an intron. And the goal here was to target this intron where the mutation occurs, remove it, and allow for correct splicing of the exons together.

This is the CRISPR cast. You may have heard about CRISPR, it is in the news nowadays. This is a particular enzyme that can be used to target the mutation. The mutation is the red X right there. By using a guide RNA, it brings the CRISPR molecule, the Cas9, to the correct spot.

It will cut that mutation. Again, allowing for spacing of the gene together. Putting together correct exons and hopefully leading to a functional protein.

The progress so far is that, they have identified guide RNAs that can promote correct splicing of the USH2A gene. This has shown... Of cell lines. Here is quantification of that after looking at several different guide RNAs.

They found one that is up to 90% specific for correcting that mutation. And looking at protein,



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

that is shown right here. This is a single cell where you are looking at the nucleus of the cell shown in blue. The USH 2A protein is shown in red.

This is with the mutation. You do not see much red protein. It might be faint on your screen, but there are little red dots. That is actually the USH 2A protein.

It shows that this treatment is working in these cells. So, their polymeric conclusion is that, genome editing with this particular form of Cas9 can restore healthy USH2A and RNA in the cell lines...

The goal is to further optimize these guide RNAs. They want to test the strategies in USH 2A patient derived cell lines. This has been done in a generic cell. If they get patient cells, they can do in a stem cell line.

Now, for the third and final project, this one is called "Preclinical development of patient-customized ASO therapies for Usher syndrome."

You have already heard about ASOs from Jennifer's presentation. Those are antisense oligonucleotides. These are short stretches of RNA that can be targeted to specific sites and genes.

This work is being done at Boston Children's Hospital and Harvard Medical School. Led by Gwenaelle Geleoc and Tim Yu. I should mention, Tim Yu is one of the only investigators in the world who have led... If you want to look him up, I think he is a remarkable individual, and I am happy we have been able to recruit him to this field.

We are working with postdocs in the lab, Stephanie Mauriac and Hu-Han Huang. The hypothesis in this case is that, the anti-sense oligonucleotides, or ASOs for short, can be used to target Usher mutations, USH2A Lynn particular, and restore healthy...

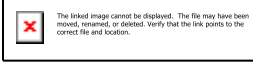
And the first goal is to design ASOs for blocking abnormal splicing for this particular mutation that occurs in exon six of the USH 2A gene.

The second: looking at exons 19 and 20. This is what the USH 2A protein structure looks like. This is a diagram. You can see the red X show where these two mutations that are being targeted exist. One of them is in the early part of the protein in exon six.

The next is in exons 19 and 20. In this case, using the anti-sense, they help to deliver the ASOs and target the red star mutation. The hope is that they can block cryptic splicing. Jennifer mentioned that earlier. It occurs in USH2A. It also occurs in the site, at USH 2A. If the ASO can be delivered, you may be able to skip over the mutation and allow for correct splicing of the USH 2A protein.

That is one means. The other is looking at mutations that occur in both exons 19 and 20. It turns out, this is a mutational hotspot for the USH 2A protein. There is (indiscernible)... In both exons 19 and 20. Including the one that is highlighted there in red.

The idea is that, if you can skip both exons, you may be able to avoid all of those mutations and lead to a correctly -- a correct and functional protein.



So, progress. This is the way we look at RNA in the lab. So, I will not go into details of this technique. We are able to look at but the healthy RNA, which is labeled as WT. That stands for "wildtype". That is acts on Exon 6 and 7 as they would appear appropriately. Exon six, when it carries a mutation, shows a change in the size of RNA...

That was an encouraging result right there. The other one is shown right here. This is also a busy looking slide. I am sorry to show you, but this is what scientists get excited about. In the first vertical column, there is one labeled ASO three. That was shown to skip exon 19.

The next column where it is labeled ASO 6, that skips exon 20. The goal was actually to skip both of them together. They abuse accommodations of exon 6 and 3 together. The box here shows that it was effective, quite effective in this case.

So, those were encouraging results. The luminary conclusion for the third project is that, ASOs have been identified that skip exons 6 and 20. There is further optimization that is needed for Exon six. The next step that after showing of this works and step lines is a test this in the zebrafish model and eventually, test this in patient-derived stem cells.

So, only six months into these projects, but there are promising results so far.

I would like to acknowledge the support of the Usher Syndrome Society and the Board of Directors, as well as the three teams of scientists who have been passionate about leading this research.

It has been a pleasure for me to be in the middle of all of this, to speak with the members of the scientific advisory board, to the Board of Directors and to communicate with the scientists and be able to share all of these results with you here today.

So, thank you for your attention.

(Applause)

JULIA DUNNING:

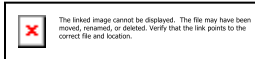
Hi, again. We are going to take a tiny detour from the science.

Which I hope you all agree, has been incredibly helpful and promising. And it makes me feel so happy for my daughter Bella. That these amazing scientists are doing so much to help her, and other children, and other adults like her.

I am going to first start by talking a little bit about Ava's Voice, which I neglected to talk about this morning. They are another one of our partners who is here on site.

I am incredibly grateful that they have taken over childcare from one of my responsibilities and they are doing an amazing job! We will have some special activities this evening. So, you can see what they do all day with these kids, which is just amazing.

Not to mention the lifelong friendships that the kids make while they are here at the conference.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

But first, we will detour a tiny bit from the science and we will come right back after break.

I have one announcement before break. So, do not leave. But first, we're going to have -- Jeffrey is coming up. I am sorry, we are going to have Mike Walsh come up. My apologies, Mike Walsh, founder and president of Flight for Sight. When he is not working on Flight for Sight, he is a teacher, art patron, and constant enthusiast about what is possible in the world.

He is also a member of the NY Rockers, an Adaptive Blind Baseball Team. He has some really exciting news to share with you. So, please welcome Mike to the stage.

(Applause)

JULIA DUNNING:

Is Sarah in the room? Yes, please. We need help with the slides. There is a clicker right here.

MIKE WALSH:

I do not look like a Jeffrey, clearly. I am Mike.

JULIA DUNNING:

It has been a long day! Are you all set? Sarah is here.

MIKE WALSH:

Sure. It is not a rough crowd. There is only 42 people here, like the app says, right?

(Laughter)

MIKE WALSH:

Alright. Hi, good morning!

SPEAKER:

Good morning!

MIKE WALSH:

Have a sip of your coffee. Good morning!

SPEAKER:

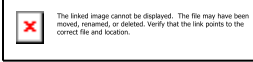
Good morning!

MIKE WALSH:

Alright. All of the science, research, is wonderful. I am not that smart. But someone could explain it to me. But, hi. My name is Mike Walsh. I spoke here eight years ago. I cannot believe that. 2014 — not here but in Boston. I met someone earlier who remembers me.

I do not remember it. But, it has been great to meet all of you. Making new friends. Learn information, this is what it is all about, and connections. Connections is a great word.

It has a lot to do with what I want to talk about today. So, thank you Krista and the entire staff for letting me come here and speak.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

I'm here to talk about Flight for Sight, how we turn the campaign in 2014 into a full-fledged nonprofit. Just a little bit about my history... Which button do I press? Which one? Sorry... (Pause)

How do I go back?

SPEAKER:
The red button.

MIKE WALSH:
Power! Alright! I'm going to be looking like this... Alright. Forward, back... Oh, there it is. Alright! Alright, alright. We've had our coffee, we are alright, we can do this.

Anyways, little bit about me! 12 minutes... Oh, OK! It's a countdown! Ugh, wow! (Humming)

What is Flight for Sight? Jeopardy. A little bit about me: my Usher syndrome attorney, my brother, five years younger than me, was born with Usher Syndrome Type 2. We were born I need hearing aids. We thought that was the end of it. There's nothing in the history of our family, so it has been an interesting journey.

My brother started running into things at night games, running a trashcan. The story is that he fell into a pond. At the age of 15, he was told by a doctor he was going blind. Imagine that.

I was diagnosed with Usher syndrome well. I was a typical naïve person as to what that meant. All was normal in my world. I had the freedom of driving, was living the dream, working in the sports industry. In fact, I went on to be a professional mascot for 10 years. Who knew my professional customs was just foreshadowing the rest of my life?

Fast forward to 2014. My symptoms were on full display. I can no longer drive and began using a cane. And during this time, I was working in social media, this new exciting industry back then! I was really beginning to appreciate the value of connection, much like this conference. Granted, in-person connecting is the best, but we also have these great technologies now.

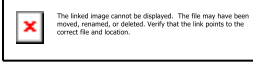
And as well, during this time, I had dated a flight attendant, and she gave me this airline pass to travel the world at a very nominal pass. Truly incredible, I recommend it.

(Laughter)

MIKE WALSH:
If you're single! I don't want to disrupt anything. Alright, Mike, just stick with the script, right?

She allowed me to travel and use her pass. So, there are these three things. I had this flightpath, this Usher syndrome thing — my friends are like, "What's happening?" — and I was really into the social media world.

We watched this Facebook page and this campaign called #Flight4Sight. The post said, "Hello, my name is Mike Walsh, and I'm losing my sight. In two days, I will walk into the Madison Dane County Airport. Today, you decide where I'm going."



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

For example, family friend, Dan, -- eventually, the community provide me with great destination ideas but also connections that allowed me to have amazing experiences. Here, Dan Swift, who works at the US Embassy in Ethiopia said, "Come on out!" He set me up with all kinds of expenses, including the school for the blind. Here, you see me with a wooden can try to demonstrate how I need a cane or my head. You know? We are always running into things. It's not just our feet.

Let's see... Alright... You see the computer room there.

A major component... Oh, that picture is not showing up! Oh! Anyway, a major component of my trip was meeting with other blind and low vision individuals. I met with many individuals. We see the record setter for skiing downhill. There is also a legally blind dancer from 'Dancing with the Stars'.

You see Molly in the bottom left-hand corner. She is someone I met at the Usher syndrome conference in 2014. She is fantastic, look her up! Molly Watt Talks. She is doing a lot of great work.

The white picture should be the Cleveland Cavaliers owner. Our discussion actually went to LeBron James and winning the lottery.

Let's see, the top left-hand... Top left picture is a woman named (Unknown Name), professor at the University of Michigan. We sat down and had a great conversation about adaptive technologies. Our meeting, however, was arranged through another new-age technology that I used during my campaign. Any guesses? You're going to be wrong, so we will skip to it. That technology is Tinder! Yes, let me explain!

On a layover, somebody saw my Flight for Sight link in my Facebook profile, and she was telling me about her family's battles with vision issues. I got messages like this all the time, people asking questions, and it was really interesting and how I can help them find someone. It's all about connections. I love it, right?

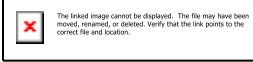
Soon thereafter, I flew back to Detroit and met this person, and she set me up with -- all thanks to Tinder.

Here is a picture of all my Instagram pictures. I use my cane in different ways everywhere I went. It's just another strategy, kind of having fun with Instagram. I wanted it to be really focused. You see a picture down there of me pointing to the world's tallest building and just various pictures... What else do we have there?

There is an imprint of the cane on a chair, I think at a Panera. I thought that was funny. Sorry, Panera!

Anyway, let's see what else... (Pause) Oh, what's that? Oh, these are all... These are all just other pictures. I went to the Museum for the Blind in Madrid, Spain, where you can touch models and buildings. Very good experience. That is me snorkeling, me at a coffee ceremony in Ethiopia, and we pretending to balance out alike. Anyway, good times!

Fast forward to New York. We have six minutes. That's why we are here. I met someone named



The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Rosalie Chandler, and New York is where I live today. She is a nonprofit fundraiser and grant writer who took an interest in my campaign. We discussed how we could turn it into a nonprofit. She gave me a framework for how to do this, and her strategic thinking and writing ability and fundraising experience were a turning point for me to believe Flight for Sight could not only be revived but thrive.

And so... Hold on... Sorry... (Pause) Red button! OK, sorry.

Anyway, this is the people joining me on the board. Here, you see Rosalie Chandler, and then there is my brother in the middle. He is a lawyer in Wisconsin. For laughs, if you want to look up "Johnny Walsh comedy," you will see some great comedy and all his blind jokes. Funny man. I hate to admit it. He is funny.

On the far right is Megan Kennedy, whom I also met at the Usher syndrome conference in 2014. She is with Amazon today working as a Senior Program Manager of People and Accessibility.

Alright, big moment! I think you already saw it, but anyway, \$30,000! We are giving away three \$10,000 grants for people to continue what I was doing and to fulfill the mission of Flight for Sight, which is...!

"To give blind and low vision people the opportunity to explore the world, get with others, and educate others about their lifestyles and experiences."

Now, I want to speak directly to people who are blind and low vision. What is your big idea? Anything is possible.

Explore: where do you want to go, and what you want to do that? Think big! You have \$10,000 to play with. Want to go surfing in Hawaii? Why not? Find a blind surfing instructor and show us how it is done. We will send you there with the GoPro to make some great stuff.

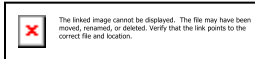
Or maybe you want to use our TikTok page and do dances at major landmarks, teaching us what you can and can't see. Do you like to ask questions? Then interview 10 blind and low vision influencers in 10 states. Also, take the time and do something fun at each state. You got 10K, 10 states, 10 interviews. Dare we say... 10 days? That could be fun to watch. Just pitch us!

Engage: who do you want to meet? Get to know people along the way, in person, and online. We want our explorers to stay engaged along the way. A trip may have a destination along the way, but you will also meet people as you go.

People are excited for you. They want to learn and follow along and engage. For example, our Facebook page has over 1400 likes. How could you use this community to your advantage? Ask them questions. Where should you go? And so on.

Educate: what do you want to teach us? Along the way, you are going to learn, so you will learn something. Teach us and pass it on. Teach us something about your life and the lives of others who are blind and low vision. Put yourself in a position to learn amazing things. How can you take this chance to grow and share those experiences?

Traveling is an opportunity to learn so many things. The world is so beautiful, I can't even begin



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

to tell you. There are people out there that are just... Yeah...

We hope to connect you with as many great people as possible.

Let's see, where are we at?

So, it's important to note that your project idea doesn't have to be perfect! If you have any inkling of an idea, please submit it. The spirit of Flight for Sight is to use social media, but you don't need to be an expert. We can teach you. It really isn't required. If you are a writer, you can plug for the website. Just think creative. What can you do?

Let's see...

We will be taking care of much of the legwork during trips so you can focus on the mission at hand. We want our recipients to feel like the rock stars they are.

So, how can you apply for these grants? Alright! Let's see, where we are? There we go! Flight for Sight: explore. Engage. Educate. If you go to FlightforSight.net, you will see a link for the application and FAQs. We require you to read that beforehand.

Go big, give us your biggest ideas.

Going back to speaking to everybody in the room and online — hello, mind! Wherever you are. In the air?

One the elements where the most excited about is the community. Anybody can be a part of Flight for Sight. Are you able to host a traveler? Do you know of blind or low-vision influencers or travelers can be? Please get in contact with us. Any ideas, concerns... We are very new, start up, so anything held, and we are excited to start connecting with all of you.

If there are any CEOs of airlines of the room, just let me. I got ideas for you. If we can make that 10,000 stretch, the more, the better, the more they can do!

Cheers to exploring, engaging, and educating. Thank you all so much for your time today. I look forward to meeting as many of you as possible.

FOUR SECONDS LEFT! WOOH!

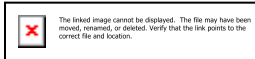
(Laughter)

(Applause)

MIKE WALSH:
Questions? No? Anyway, just find me.

SPEAKER:
I actually have one question. I'm interested, if you are a parent of a small child, could you apply?

MIKE WALSH:



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Right now, we have it at 18. Good question, but if a parent is coming along, I guess they are 18, right? That's a good point, something to think about! Thank you. See, feedback! Wonderful, thank you.

JULIA DUNNING:

I'm going to do one last thing. Mike, you can stay here or walk off. Actually, you can help me! We have another price. It is brought to you by Atsena Therapeutics will you can grab one slip...

MIKE WALSH:

Let me grab my name!

(Laughter)

MIKE WALSH:

Here we go... (Pause) Oh, of course, it's Jeff! Jeff... Jeff Burgundy? Burganeer? Jeff? Jeffrey?

JULIA DUNNING:

Excellent, we're going to go on break now. We will meet you back here at 10:30 sharp. Don't be late! We will be hearing from ProQR. So, off you go, and be back!

MIKE WALSH:

Thank you.

***** BREAK: RETURNING AT 10:30 AM CT *****

SPEAKER:

Alright, are we ready to begin again? Everybody is seated? We're going to get started. Alright, a couple of announcements as we start again.

We are going to ask all the speakers, me included, to just slow down a little bit more for the interpreters, for the CART service, so just reduce the speed a tiny bit. Also, all of the recordings that we are doing today are going to be available, so we are going to package them, get them ready for you, and we will be sending out emails letting you know when they are going to be available. They will be available to attendees first and then the public in general.

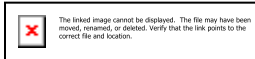
Alright, I'm going to introduce my friend, Adam, and we will start again!

ADAM BAILEY:

Thank you, Julia. Alright, so my name is Adam Bailey. I'm one of the two ambassadors for the state of Arizona, and I have USH2A. I'm really excited to be here introducing our next speaker.

Before we get started, I do want to just take a moment. I have been seeing some amazing research up here from some amazingly smart people, but the research is just part of the story. Part of what I do as an ambassador is building the USH Trust to connect the researchers to the research community to find participants to volunteer their eyes – literally – to these experiments.

I want to take a minute to give a round of applause to member's of the audience who may need to remain confidential for volunteering their eyes to this research. Without you guys, none of this



is possible.

So, just a little bit about myself. I have USH2A, as I mentioned earlier, and that means I was born part of hearing. That has been a struggle. In middle school, we found out that I had night blindness, that has been a continuing struggle as my eyesight has deteriorated. In college, I had to stop driving at age 26, and then I was legally blind at age 29.

When I was 32, I got my first guide dog, Micah, and now I am 35. This has been a continual struggle as my eyesight has started to deteriorate. That is why I'm particularly excited about our next speaker, Andy Bolan, who is with ProQR Therapeutics.

He is the Director of Medical Affairs, and he's going to be talking to us about the first ever final stage USH2A genetic treatment. Thank you, and please give a warm welcome to Andy Bolan.

(Applause)

ANDY BOLAN:

Well, good morning! Good morning, conference, and thank you for those joining online. My name is Andy Bolan, the Director of Medical Affairs for ProQR Therapeutics, which is a company based out of Leiden, small Dutch town in the Netherlands. I want to thank Krista and the Usher Coalition team for the opportunity to join you in person.

It's worth noting that ProQR has partnered with the Coalition for a few years now, and this is the first time I am living some of these people face-to-face. I guess that is the world we live in, but today, I'm good to talk to you about the challenging year we have had is the company with the data readout in February, which didn't go well, with leaders congenital amaurosis type X.

Just to introduce myself – I am a patient advocacy professional who has worked in the pharmaceutical industry for over a decade. I get to work with wonderful organizations like the Coalition to feed your direct questions, feedback and views into the work we do both in clinical development and across the company.

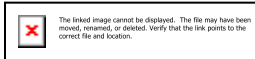
I might make some forward-looking statements throughout the presentation.

So, as a little introduction into the company, ProQR is dedicated to developing RNA therapeutic. RNA therapies, which we have had some wonderful therapies on today, use antisense oligonucleotides, ASOs, which are specific or designed to correct RNA in a person to reverse or stop the progression of a condition.

We have had a challenging year. I wanted to take some time to explain to you and the community where we are. In February this year, our lead program in Leber congenital amaurosis type 10 list its primary and secondary endpoints, which was hard for the company to take, but we did take off a post hoc analysis. I want to talk about that briefly.

In the trial, we found no conduct issues, and I can tell you actually saw some efficacy signals insistent with our earlier trials when comparing an individual's treated to their nontreated eye, also known as the contralateral eye.

That was useful to know because our discussions with a European Medicines Agency



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

previously, that was their preferred trial design. However, wanting a global study, we went with the FDA-mandated sham control design. The next step will be to engage with those regulators with the Illuminate data to see what the regulatory plan will be.

I will have an additional update for the community later this year, and I will make sure I work with Krista so that you get that.

Why does this matter? Due to being an extremely small biotech, the data milestone was a big milestone for us. ProQR has, therefore, had to react. The portfolio prioritization and restructuring initiatives kicked into motion, this was an exercise commission we could really secure our future as a company and invest in our newer technology, Axiomer, which was founded in 2014.

What is prioritization excellent income and where are we post-February? Well, we have gone to fundamental change. As mission, we have looked at the data for the Leber congenital amaurosis Type 10.

Last December, we launched trials. Unfortunately, we had to convince that down to one phase 3 trial, Sirius. I will speak a bit more about that later in the presentation. We haven't unfortunately had to suspend all other trials and how to reduce our workforce by 30%, which has been tough. I lost some fantastic college in that. But we have accelerated our investment into our new technology as well, which was validated with a partnership with Eli Lilly, which is fantastic for the future.

I think I can skip most of this because of the presentations that have already happened from the more scientific college in the room, but just to give you a quick idea of RNA technology that we are applying with our ASOs — well, RNA stands for ribonucleic acid, and it is a fundamental component of all living cells. Our ASOs are basically designed to correct the underlying condition in a person's RNA.

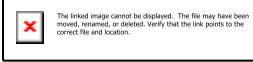
The ASOs consist of a small synthetic piece of RNA which is chemically modified to get into the cell and make sure the uptake is better. The technique itself is an approach that has been used in other genetic diseases, and there are RNA therapies approved for individuals in the world today.

That is, they are different to how we apply them to the AAV vectors and the subretinal discussions. However, Shannon, I do have to apologize because I'm going to have to update this slide because of your fantastic data showing the ability to go outside of the bleb, which is really exciting news!

This slide, to describe it to come on the left-hand side, we have an illustrated graph where our RNA intravitreal e- injector therapy can get to the whole retina compared a subretinal injection. Again, Shannon, I'm going to have to update this because it is fantastic news that we have seen that change, actually.

But I will get to the point, and thank you for being patient with me, to talk about our Usher program at where we are specific with. Ulteversen is a first in class RNA therapy designed to skip Exon 13. Jeff had some fantastic graphs earlier about how skipping happens.

Basically, what we want to do is take exon 13 and connect 12 and 14 together to hopefully



create a functioning protein. It is very specific to exon 13, and this is really genetic science. We are in an era of personalized medicine, and I remember working in Westminster in London 10 years ago, where personalized medicine was a bit of a buzz word. We are now there, actually, in these genetic therapies are proof of that.

I want to thank, because I always do, the Foundation for Fighting Blindness, and other community partners funded us quite significantly to get the program off the ground.

Bear with me with this next complex slide. In March of last year, we are very pleased to announce the positive results of our Usher syndrome phase 1 study, Stella. There is a theme going through the galactic themes of our trials. That is due to all of the people being geeky, Star Wars fans, Star Trek fans. Some of them describe themselves as "Trekkies". I am also one. That's OK.

Stella met all of its objectives. This is a milestone in our ongoing Usher syndrome research for retinitis pigmentosa, it Ulteversen really aimed to stop vision loss for people with specific USH2A exon 13 mutation.

The illustration on this graph here really shows the mapping of the progression of the condition, and this has really informed our design trials for our phase 3 studies. Stellar showed benefits across all individuals injected with one dose except for -- we really saw the fundamental changes in the advanced individuals compared to those with early or moderate vision loss.

So, what did we really learn? It's worth noting our phase 1/2 Stellar trial design consisted of 20 wonderful individuals with a follow-up period of two years. The goal of the single-dose study was to identify registrational endpoints. What we mean by registrational? I'm getting it over the line to get it to as many people as possible based on onset, durability, and weighting of effect and the target publishing.

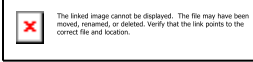
The positive news is that it met all of its stated objectives, both in early and advanced stages. This is important for the next day. Worth noting, the medicine was observed to be safe and well-tolerated, with no Sear's adverse events reported.

Therefore, clinical proof of concept was really found in the endpoint on Best Corrected Visual Acuity, BCVA. Some of you may know that as the eye chart. With that, we met our internal goals of getting Sirius and Celeste up and running by the end of 2021. We continue to enroll Sirius individuals daily, that we have had to close Celeste, as I mentioned, those individuals have moved into our long-term extension study, which I will talk about later and also has a galactic name.

It is important to talk about the safety of clinical research. It is key we take this seriously. On the slide I am presenting now, we see the end goal data. This is an important part of research. It is important to know that there are always risks in clinical research.

I hope by going over some of the clinical aspects now, it shows you that we take this serious and want to make it as safe as possible. We continue to work with ethnic bodies throughout the study to make sure that participants are looked after throughout their time.

Safety plays a huge role again of phase 1 clinical trials. The primary endpoint of Stellar was



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

really safety and was observed to be safe and well tolerated over 3700 participant follow-up days and two years of follow-up in the study.

It is important to note, no serious events were noted and there are no cases of information. No new cataracts were reported and no cases of cystoid macular edema were reported in the study... We saw stabilization with only one injected compared to one untreated eye.

On this slide here, we have two graphs. I will start with the left-hand side... After a single dose of Ulteversen. It's a sustained effect consistent with what you call a half-life, or what we would say the duration of the medicine affects would be.

On the right-hand side, we have secondary measurement, which is the ellipsoid zone, which clearly shows in the data deterioration of the medicines effect of the 24 weeks, an important point that informs our phase 3 clinical trial design.

It is worth noting, across all participants in Stellar, we had a range of vision loss and vision acuity. Therefore, seeing the stabilization like this, was actually really great to see.

But, we did learn something. We found that BCVA, as I mentioned, was responsive... Why is that important? Because we began to learn what we could do for the next phase and how to get this over the line over the regulators.

On the two illustrated graphs I have on this slide, starting with the left-hand side -- sorry, starting with the right hand side, we had a 9.3 letter benefit for those individuals with 20/50 vision or worse.

And actually that drove a lot of the benefit we saw across all participants. Therefore, we determined the registration land point measurement for the regulation bodies will accept for a new medicine of BCVA in a more advanced population. In this trial, we collected all the information we therefore needed to move forward to the pivotal stage to get those drugs over the line.

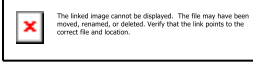
Very conscious I have a minute to go.

So, in summary, last year we really saw encouraging results. However, since February, is always worth stressing that that milestone did inform clinical development quite significant.

The government has agreed with the six-month dosing that we saw with Stellar would be appropriate. Stellar is up and running. I mentioned earlier, longtime USH long-term extension called Helia, which I briefly mentioned earlier.

That is where all the individuals from Helia were rolled into, as were the Celeste individuals who have been dosed before we close that trial. It is worth noting, all participants had joined those trials and maintained to be on treatments, which is great to see.

Sirius is going to be a gold standard BCVA measured primary endpoint trial. With the more advanced conditions in the USH 2A. Clinic and trial participants will receive two doses of the Ulteversen every six months. The primary endpoint here is, like I mentioned, visual acuity.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Given the size observed in individuals, we anticipate a primary endpoint of 18 months of follow-up. I have to say huge thank you. I am over time, I apologize. A huge thank you to the usher coalition for something we set up. It took us 21 months to fill that trial.

Which for a small biotech, is a killer. Actually, it is very costly and clinical development. I wanted to do something proactive with the usher coalition to see if we could speed that up. The USH trust registry is back.

As we begin to recruit for Sirius, or at least prepare to partner with the Usher Coalition to inform on upcoming clinical trials, also to see the wide population of USH2A individuals that there are around the world.

I cannot tell you how important it is for registries to exist, for national history studies to exist. It informs what we can do with medicines in the future.

I have always believed that the community is an engine of research. And actually, initiatives like this really bring that to life. Rebecca Alexander spoke beautifully about the interdependence of the intersystem in which we work in. This is an example of that.

You guys in the community, you are the brave people that take part in clinical research. Without you, we do not make those strides forward in finding the medicines of the next generation.

With that, I would like to close my talk. Obviously, we have a panel later. But yeah, thank you. I look forward to any of your burning questions. Thanks, guys.

(Applause)

JULIA DUNNING:

Hi again. Thank you, Andy, so much for that. It is so encouraging and hopefully everyone in the community will benefit from what you do. We wanted to remind everyone who has not gone to the registration desk to check in.

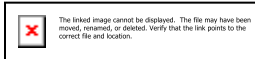
Make sure you please check in. On the back of your nametags are two drink tickets for tonight's event. You do not want to miss out on that. Make sure you check in with Sarah on the table. I will ask Jen Lentz to come up and join me for our 'Updates on the Vision and Balance Natural History Studies with USH1C patients'.

DR JENNIFER J LENTZ:

I will turn my computer on. It has been a challenge for some of us to see the small screen in front of us. Welcome again. Thank you for coming and staying through the morning.

So, I will talk about -- earlier this morning, I talked about our work, our preclinical work with animal models to develop drugs. Now I will talk about our clinical work with individuals with Usher syndrome.

So, my laboratory conducts three Natural History Studies. With individuals with Usher syndrome. The purpose of a natural history study is to collect information about the natural history of a disease in the absence of an intervention from the disease's onset until either it's resolution, or the individual's death.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

The goals are to improve patient care and benefit drug development.

Our first study that began in 2014, is a retrospective natural history in Louisiana. This is the entry study to our other studies that are prospectives, where we invite participants to visit doctors. The study allows us to review past medical records.

It is welcome to all Usher types from individuals living in Louisiana and also open to all individuals around the world with USH 1C.

Our goals are to determine the clinical, which means the symptoms you have; And sociodemographic - your experience with Usher History in Louisiana; And determine eligibility for our prospective studies.

So, participation includes, you would provide us with your medical results from the past. Or provide us with a list of your doctors and we can request those results from them.

We also ask for you to complete several surveys about your experience with Usher syndrome. So, this table shows where we are today. Currently, we have 109 individuals enrolled.

78 of them are from Louisiana. Approximately 50% are male. (Pause) Oh, other one. OK... Here we are! OK, thank you.

OK, so this table on this slide shows where we are today. We have 109 enrolled, 78 from Louisiana. About 50% are males and 50% are females. Individuals range in age from six months to 93 years.

92 out of the 109 have USH 1, and of those, 75 have USH1C. So, this data set is really biased for individuals with USH1C. The reason is because we are working to develop therapies for USH1C. We still want to enroll individuals that have other types to help us learn about USH1C and how they are the same or different from other USH types.

Our second study is a natural history of vestibular loss in USH1C. We had surveyed the adults with USH1C in our retrospective study, they reported to us that they have -- they feel a mild to moderate handicap using the Dizziness Handicap Inventory survey, and that the severity of this handicap gets worse with age.

Young adults reported to us they feel a mild handicap because of their balance, and older adults feel they had a moderate, and some individuals, severe because of their balance. We wanted to learn more about this natural history and determine the progression of the vestibular dysfunction and balance difficulties in USH1C patients.. The questions we are interested in are:

1. When do balance symptoms begin?
2. Do the symptoms get progressively worse over time, and, if so, how quickly?
3. What is the most reliable test in the doctor's office that will tell us if therapy for balance is working?



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

The study protocol includes two clinic visits: the first visit, which we call "baseline", and then again six months later. We do this at that Hearing and Balance Center at the OLOL Hospital in Baton Rouge, Louisiana.

We hope to enroll 50 USH1C patients of all ages. To be included, you have to have a genetic confirmation of USH1C; be between the ages of two months and 50 years; and no other vestibular disorders.

So, what could you expect if you were to participate? The first step is the consent process. This involves a lot of discussion about the study. It usually takes about one hour, begins with introductory emails, and then we schedule an initial face-to-face conversation. COVID really taught us we can do this in a video call, or you can meet me in my office.

The purpose really is to discuss the study and review and sign the forms and answer any questions that you might have.

The next step include preclinical activities or pre-visit activities. During this time, we review your medical history and make a list of your previous doctors and also complete some surveys.

Next, we schedule an appointment for you at the clinic. Two clinic visits: first visit, and then again six months later. This does provide a \$50 reimbursement for each clinic visit to help with travel expenses.

After the completion of this study, we will provide you with a medical report of the results of the tests that were performed for you to take home with you, and then we like to schedule a follow-up video call really to discuss your participation and your experience in the study.

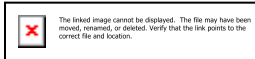
This is a long list of all the tests that we perform as a part of this study. They include a few tests on your visual status at the time of balance testing; and your hearing status; and then several studies on vestibular function; and balance. It takes about 5-6 hours to usually complete it in a long morning.

So, currently, we are open to enrollment, and we have enrolled eight participants. Seven of them have had two clinic visits, and our eighth participant has had one. We will have their second one at the end of the year..

This graph shows the results of those seven participants. It's a very busy graph, but what I can say is it shows us that we see some normal, some abnormal, and some completely absent test results, suggesting to us that some parts of the balance system are working better than others.

OK, our third study is a natural history of vision loss in USH1C. Our goals are to determine the natural clinical progression of vision loss specific to USH1C patients. Again, we are trying to answer:

1. When do symptoms begin?
2. How quickly does the vision loss progress?
3. What is the most reliable test in the doctor's office that might tell us if a therapy is working



when a therapy is being tested?

4. And also, to identify potential clinical trial participants when there is a new trial.

The protocol includes four clinic visits. The first visit, we are at baseline, and then three more every six months. We are conducting this study at three sites with Dr Maria Reinoso at the LSU Eye Clinic in New Orleans; Dr Robert Koenekoop at M UHC in Montréal, Canada; and Doctor Wadih Zein at NEI in Bethesda.

We hope to include 50 patients, including pediatric, young adult, and adult patients. The inclusion criteria are to have genetic documentation of USH1C disease; aged 12-50 years; and no other vision disorders.

So, again, the participation looks quite similar. There is a consent process, some pre-visit activities. The clinic visit here is for 4 clinic visits. I'm lucky enough to say that with Usher 2020 and USH1C Foundations, we are also able to provide a hotel stay near the clinic in New Orleans or near the clinic in Montréal. There are reasons for that. We have split these clinic visits into two half days. Vision testing is very exhausting. Many of you probably already know that.

And then, again, after completion, we provide a medical report of all the tests we have conducted an follow-up with a call.

Here is our long list of vision tests that we are conducting. The first afternoon involves your participation. We ask you to tell us what letters you can read, what paragraphs you can read. Can you see this light or that light or different colors? The second day is mostly taking pictures of the back of the eye.

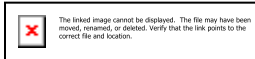
So, again, it's very tiring. It's good to be well-rested. And if you are not, it actually can affect the results of the vision test, so we want you at your best and well-rested. So, we have split the day. Instead of one long day of vision testing, we do it in two half days.

With the funds from Usher 2020 Foundation and USH1C, we are able to provide that. I should also mention we provide interpreters for all of our visits and video conference calls.

OK, so where we are... This table is totally unreadable, but it's just here to show you have evaluated eight participants. All of them have had a first visit. Some of them have had a second visit. These are some of their results.

I would like to mention that last month, we had a female participant, 59-years-old, and all of her test results would suggest to us that she is light reception only. She is using a human guide to get around, but I come to the clinic to meet all participants and have a conversation with them. I was having a conversation with her, and she started to tell me that she still emails, and she emails me!

And everyone in the room turned around to look. They listened to this conversation because it's not something we would have predicted from her test results. So, there's a lot of information that we can learn from you and your experience in addition to these tests.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, in summary, we are conducting three clinical Natural History Studies for Usher. They are ongoing for the next few years. We hope that the studies will lead to better awareness of the symptoms, how they change over time — which we also hope will improve patient care.

I also want to mention we had a 35-year-old male in the balance clinic, and in his conversations with the vestibular audiologist, she recommended to him that he might benefit from physical therapy. So, after his participation, he went home and found a physical therapist near his home. This therapist had never heard of Usher syndrome. I'm sure that is a common story for many of you here.

But she researched Usher, his test results. They developed a plan for him, and he did physical therapy for six months and reported to us that it changed his life. We are so thrilled that in addition to him coming to help us learn about the details of his vestibular loss, we were able to help him change his daily life. He feels more confident to go out into the world; he feels more stable through the strength training and his physical therapy.

So, these studies were delayed with COVID, but I'm thrilled that they are now started again and are open to enrollment, and I'm hopeful over the next few years to report back to you about results that we are learning from these studies.

So, first, I just want to say thank you, a big, big thank you to all the individuals and families with Usher that have participated in our studies. It's a lot of work to come. We are thrilled to work with you, and we are so grateful to be learning from you.

And also, the technicians, the collaborators, the doctors throughout the United States and Canada that I worked with to see patients for these research studies. Thank you.

(Applause)

JULIA DUNNING:

Hi, so Jen is just going to stay here. And we are going to start the next session, which is our USH research panel Q&A.

So, please help me welcome back to the stage moderator Jeffrey Holt, Shannon Boye, Jennifer Lentz is here already, Susie Trotochaud, and Andy Bolan.

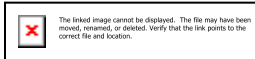
(Applause)

DR JEFFREY R HOLT:

This will be the question and answer session for our research panel. There are folks running microphones around the room. So, if you have questions, please raise her hand and we will get a microphone to you.

As a reminder, research panel here. You have heard them speak this morning. Jennifer Lentz has spoken about USH 1C. Both the research and therapeutics they are developing, as well as the clinical trials.

So, she will be happy to field questions on that. Shannon Boye has spoken about USH 1B and my sone seven a and there development to... Susie has also spoken about what USH 1C and



gene therapy approaches to treat that.

Andy down here at the end from ProQR. His company has been working on USH 2A and ASO therapies. So, you have heard a bit about the different therapies that are being developed. We have talked about the ASO nucleotides. We have talked about gene therapy strategies, both single vector and dual vector approaches. We have talked a little bit about gene editing. This session is really for all of you out there to ask any sort of question that you have, whether it is the basic biology.

We can talk about RNAs. We can talk about DNA. We can talk about the genetics. Proteins. Any questions you may have, general questions for us up here or specific questions for any of our panelists. If you have any questions, get the hands up. There are no dumb questions. We are happy to talk about any of it.

I see several hands already. Why don't we get started? Over here, let's go.

QUESTION FROM FLOOR:

Hi, I am (unknown name). I have a clinical diagnosis of Usher 2A. I've done genetic testing but I am waiting for the results. I am 53. Just a year ago, I started experiencing vertigo. Over the past year, I noticed that my balance is off when I go for a walk. I walk around my home.

I was wondering if that is something that you scientists have seen in your studies. If it develops later in life. And if there is anything I should be asking my ENT. I have recently met with an ENT. I am scheduled to go for some testing.

So, I am curious to see if there is any information that I should be asking as I go through this.

DR JEFFREY R HOLT:

Sure. I will try to start by fielding that one. Balance dysfunction is one of the symptoms of Usher syndrome. It is often associated with USH 1 but can be associated with some of the others as well.

The treatments that are being developed may be able to address both vision, balance, and perhaps auditory dysfunction. That is work that is ongoing.

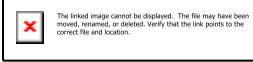
Things you need to keep in mind now are falls. That is the most important consequent of balance dysfunction. Having a fall and then having some secondary effect, breaking a bone, or something like that.

Using the support, I think, is going to be critical. Is there anyone on the panel who wants to add to that?

SPEAKER:

Can you hear me now? OK. I would just add that, balance is a little bit different as a sensory system than hearing and vision.

Vision uses information from your eyes. Hearing uses information from your ears. And balance uses information for both your eyes, ears, and the muscles in your legs to coordinate in your brain and give you an idea of where you are in the world and how you are moving.



So sometimes, when vision changes happen, or hearing changes happen, our brain has to catch up and figure out a new way to feel balanced in the world.

So, as vision loss continues, we can begin to feel more unbalanced as well. So, it might be a good idea also to talk to your ENT about physical therapy to strengthen the muscles in your legs.

This will give more input to your brain about where you are and how you are moving if your vision is changing and sending fewer signals.

DR JEFFREY R HOLT:

Great, thank you for your question. I see another hand up.

QUESTION FROM FLOOR:

Thank you for being here and for the update on your research. Can everyone hear me OK? My question is about the applicability of some of these technologies. Some of these techniques you have been developing to hearing.

I would ask if you could share your thoughts, even if they are just speculative. For instance, is it feasible to use genetic or by a delivery to try to repair some genetic damage through the cochlear?

And if so, do we need to develop a new kind of ocular? Would it be a different flavor of AAV? Would it require surgery? Or could it be delivered a less invasive way?

Realizing that we are not exactly doing this right now, but in the foreseeable future, what might that look like?

SPEAKER:

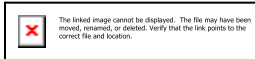
That is a wonderful question. I think there were several questions built in there, actually. Let me see if I can break that apart and address them... I can talk to about work that I did not speak about today, but some work that is being done in my lab.

We are doing exactly that to target other areas of hearing loss. The challenge is several. The genetic proteins that we would want to put into their are quite large. You heard from Shannon earlier about a dual vector approach for delivering large genes into the cells.

So, gene editing approaches would require something like that, a dual vector approach. Shannon's work has demonstrate that it is possible. In my lab, we have seen that it is possible. I think that can be done. Dual vector approaches can work.

And it may be something that will come down the line in the future. Certainly another thing to keep in mind with gene-editing approaches is what we call off target effects.

So, because gene-editing approaches are permanent, you're making a permanent change to your genome. You want to make sure that there is no off target effects and you do not have any bad side effects by hitting some other chain. Right?



The safety of these, we have to be very certain of, before we start applying them to people. Once we demonstrate safety, some of that may be coming down the line. So, stay tuned and come back to future research updates.

Maybe we will have more information on that.

SPEAKER:

I can speak a little bit to applying the dual AAV technology to the inter-ear. I think my focus is USH Wendy. There is very different forms of Usher syndrome and they progress at different rates. Part of the success of gene therapy depends on the presence of the cell structure.

You have to have cells there in order to deliver... Right? The problems with Ushers one is that... Babies with USH 1 tend to be born per family death. We have done some studies in a mouse model of USH 1B using our dual vectors ensuring that we can protect the structure of the cochlear hair cells but we cannot restore their function.

We think that is because they are already so far gone. However, the vestibular hair cells in the inner ear seem to stick around longer than the cochlear hair cells. So, we think there is an opportunity to use these dual vectors, perhaps to resort to tubular functions to USH1B patients. That could be applied to other forms of USH as well.

I have demonstrated in my talk that we have demonstrated some proof of concept for that in the mouse model of USH 1B. I am trying to think of other questions within that question. Did we get them all?

SPEAKER:

In general, I think what we are trying to say is yes, these therapies we are designing and developing for the client are also being redesigned for the ear. There are many research labs that are focused on one system, vision, or hearing, or balance.

Some labs are doing a combination of that. We are all working together to deliver options for both the eye and the ear. There are different challenges for the eye and the ear. So, we are tackling those as well.

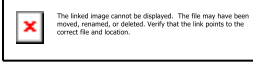
Here we are focused on delivering these drugs directly to the inner ear. That would require surgery. To be able to get the drug directly into the ear in a concentration that was effective by reaching all of the cells.

SPEAKER:

I would just say, you asked about a vector. The novel vector we are using for gene therapy is currently being used by company name called Akouous. I do not have a lot of details on that, so I do not want to speak about that. You can look them up.

That would give you more information. They are using the specter for gene correction in the ear. You can look it up and find more information about it. Our organization does not find research for hearing.

We only division. So, I will let you talk about that.



SPEAKER:

I would add to, the vectors we use in the eye are what we call neurotrophic. They like to affect neurons. And her cells in the inner ear are neurons.

Right? A lot of the vectors we see good in the eye are also good in the inner ear. There is some cross functionality between the two tissue systems.

SPEAKER:

OK, thank you. Moving onto the next question.

KRISTA VASI:

This is Krista speaking. Before we move on to the next question, I would like to please ask all of the panelist identify yourself before you answer the question for our interpreters and captioners. Thank you.

QUESTION FROM FLOOR:

Thank you, I want to thank everyone for your research. It is really meaningful to me, so thank you. My question is about connections.

When you talk about -- connecting is several things. One is, when you talk about your research on 1C, how does that connect to, "should I be equally hopeful if my son has 2A?" And, "is it all connected?" That is my question. And the question about early stages versus late stages.

My son is in the early stage of vision loss. So, how would you know if it is affecting -- like if the research is effective for someone in the early stages? The third connection piece is, we are in Minnesota, we are not in Louisiana.

So, how do you get me to work with you? Or if you need me, I know we are already part of the registry in all this. But...

DR JEFFREY R HOLT:

Great, three questions there. I will take the first one and then I will pass on to Jen... This is Jeff Holt. I have used this analogy before. I believe progress in one area for one form of one usher will broaden our understanding and help with all forms of the Usher. The analogy I have used is the rising tide floats all boats.

If that tide is rising, we are all going to benefit, no matter which of the Usher syndrome's affects you or your family. If your favorite usher has not been mentioned appear, the progress we're making with USH1A and USH2C is going to and from all of the future studies, future therapies.

I think right now is an exciting time to be in this field of USH research. I have heard it said earlier that with the new technologies, one of the best times to be living with Usher.

So yes, I think there is a lot of connection between us. For questions two and three, Jen, do you want to take that?

DR JENNIFER J LENTZ:

This is Jen Lentz. I'm trying to remember the other questions. Minnesota, yes. I grew up on the border of Illinois and Wisconsin. We go up that way every year. You can hear my accent when I



get close to someone from Minnesota.

(Laughter)

DR JENNIFER J LENTZ:

Yes, connecting. I have had a number of individuals email me for recommendations of doctors to see in the area. I do believe that healthcare is best when it is close to home.

Sometimes that is not possible. Usher syndrome is a rare disease. On average in the world, about one in 25,000 individuals -- one doctor may never see in Usher patient in their practice.

So, it can be very helpful to see a specialist who doesn't see Usher patients. They may know what to expect and answer what questions you might have. We probably all field a lot of emails from patients looking for doctors in the area. That is my short answer to you.

We can still work together on the same team, Team Usher. Learning from each other. I can help you find a doctor that is good for your son and your caregiver.

ANDY BOLAN:

Can I comment on that? On the wide spectrum of research we have seen today, it is very exciting. You know, I think ProQR is a company with a study on USH 2A in its final phase. If we can get that over line, that would have a huge significance for Usher syndrome in whatever letter or...

I think is important because as a community, we need to start seeing wins. We need to start seeing therapies getting over the line. I think with Leber's congenital amaurosis, we can talk about this as well. We have (indiscernible) which is the treatment at the moment.

We need more. That was five years ago. Actually, collectively as a community, we need to start seeing ones getting over the line. Only specialist points. Obviously, we have clinical trial centers across the United States and across the world. On our website, you can find where those sites are.

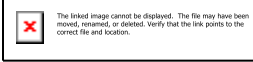
I would always recommend that you talk to your physician and try to make a connection that way. It is very important you have that discussion about research, but what is going on in your -- maybe with a local physician first. And then go to a clinical site. I think that is an important connection to make.

That is the best way to put your foot forward.

DR SHANNON E BOYE:

The third question, stages. This is Shannon Boye, by the way. It depends on the technology that is going to be applied, meaning gene therapy, which is what I spoke about earlier, is best applied in a patient where the retinal structure is maintained. If the patient is 75 — and unfortunately, all of their photoreceptors have degenerated — they are not going to be candidates for gene replacement therapy.

There are other therapies with stem cells and opto-genetics, which depend much less on the photoreceptors than gene replacement therapy. You can reach out to me, Jen, any of us about



those technologies and where they are at because they're very technology-dependent. The earlier the better for most of them, is the bottom line, I would say.

DR JEFFREY R HOLT:
Another question back here!

QUESTION FROM FLOOR:
I have a question. Two of my kids have Usher 2C. My understanding is that protein is too large for a vector to transport and. This is later vision loss in life. Who knows what will happen down the road, but would that be more of gene therapy or CRISPR versus, like, the vector gene-therapy type stuff?

DR JEFFREY R HOLT:
Jeff Holt again. USH 2C, you said? right, so yes, that one is a large gene sequence, and you are right, it would be too large to fit in a single AAV. Again, one of the dual vector approaches might be feasible.

There are some groups who are developing what is known as a mini gene, a mini gene being trying to reduce the size of the gene, the minimal functional portion. If you can chop out some of the pieces that they be are necessary for protein function, you may be able to squeeze it into an AAV vector.

There are also other vectors. There are other factors. AAV is being used a lot, but there are others that are being used. Some of those have a larger capacity. Those are being explored as well for some of the larger genes.

Follow-up question?

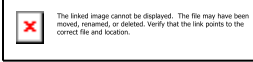
QUESTION FROM FLOOR:
Just had a quick question. To edit with the minigenes, are you talking about junk genes, or genes within that sequence don't really have (indiscernible)...?

DR JEFFREY R HOLT:
This is not the junctions. We are talking about whittling it down to what is really necessary, what you need at the cellular level to function. That might be small enough to function. I hope that was clear.

KRISTA VASI:
This is Krista speaking. I'm going to ask a question from one of our virtual attendees. Michelle Tomasi asks, "Do your studies show a decrease in swelling around the retina? According to my specialist, he recommended drops to improve tunnel vision. I am not sure how common this is in the Usher community."

SPEAKER:
Unfortunately, here today, we don't actually have any doctors.

SPEAKER:
We are animal doctors. I apologize!



SPEAKER:

We wouldn't be great at giving you clinical advice. It certainly would be great to talk with your clinician about that. There are a number of supplements and vitamins being recommended now for individuals with retinitis pigmentosa, including Usher syndrome. A good conversation with your ophthalmologist about whether that is something that would be right for you. Some of the supplements require that you continue to see your doctor for regular follow-up to make sure that the supplements and vitamins are not doing more harm than good, but usually, kept a low dose they may provide some benefit.

I would talk with your ophthalmologist about drops, vitamins, and other approaches that are not specific to Usher syndrome or retinitis pigmentosa.

DR JEFFREY R HOLT:

Thanks, Jen. Question over here? No?

QUESTION FROM FLOOR:

I do have one question. I think Susie, can you tell us a little bit more about NAC (?). I think there is a virtual presentation on it, but I wanted to tell everybody about that.

SUSIE TROTOCHAUD:

Yes, I do hope everybody goes and listens to that because that is actually from a doctor at the Wilmer Eye Institute. I can speak about generally as someone who has funded that doctors work and is also helping them get the trial going. They have received an NEI grant for clinical trial, a multi-locational placebo-controlled... Lots of other words in front of that. They have already made site selections, so there are 30 sites around the world.

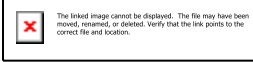
They will probably start recruiting patients the end of this year or early next year. I highly recommend you go to that, and also, if you have any questions about where the sites are, you are welcome to contact me, and I would be happy to let you know.

But that is -- it is a drug therapy called N-Acetylcysteine, also known as NAC. This is actually somewhat of an over-the-counter. It's not really recommended, but you can get it as a vitamin in the store, but don't do that! Let's just say that. (Laughs)

But the trial itself will be taking this controlled NAC, 438 patients being monitored over a four year period. It's a really easy thing, almost like an effervescent tablet that you drink twice a day. It actually preserves the -- or, the ideas that it would help preserve central vision. Probably the doctor would correct me because the trial hasn't happened yet, but the idea is that it is going to help preserve the central vision and keep that preserved for longer periods of time.

It will not help necessarily with (static) loss.

This trial is really important. As Dr Lentz mentioned and is probably a lot of you know, there has been talk in the past about vitamin A being the supplement that can be used. It's very important to understand, we have been to a lot of doctors, they don't all agree on this because the original study was not -- it did not include Usher patients. It looked at RP patients. It was not as intensive of the study is they are doing with NAC. It's kind of controversial whether it helps or doesn't help, depending on which Doctor you talk to.



The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, the idea is that this 4-year study is going to come out with a definitive answer. Would NAC be a standard of care for people with retinitis pigmentosa? And this also goes to the fact that we talk about there are a lot of gene therapies, gene editing, CRISPR, etc. All of that is great, but it is either mutation-specific or gene-specific, and this is all of RP. It is mutation agnostic. Anybody with RP would be able to try to be a part of this clinical trial, versus things that they have to look at first to let you know if you could be a part of it.

You could go and be a part of it, and we would find out after the trial is over, is this going to be a good standard of care for people with RP?

DR JEFFREY R HOLT:

Thank you, Susie. Another question over here?

QUESTION FROM FLOOR:

This is Monica. I have a question, and if you are not the best people to answer, I have a second question that I would rather be answered instead. My big question is, where are we with understanding the pathophysiology of RP with respect to the role that the neurons play, the glial cells, the involvement of the immune system, and how it is specialized to the retina and not the same as the rest of the body? and the role that calcium is plan with the axon potentials.

I think I remember one of you saying that you noticed in the cochlear that you saw structure was able to be maintained but not the function, and that, to me, means something maybe with the calcium or action potential. Where are we with understanding the pathophysiology?

SPEAKER:

That's a tough question. Good job!

QUESTION FROM FLOOR:

If you can't answer, I have another one!

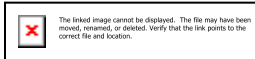
DR SHANNON E BOYE:

I think you are a stealth biochemist. I can try to answer that question. In the eye, obviously, we are seeing death of the photoreceptor cells in patients, but in terms of understanding why that is happening, it has been a little bit difficult because many of the mouse models of Usher syndrome failed to recapitulate the phenotype that we are seeing in these patients. They don't have retinal degeneration, and some times, they have mild functional deficits. It has been difficult to study that in terms of the retina.

But I would say from a general neuroscientist perspective that long before a cell dies, if your neurotransmitters have been down regulated as a result of a mutation in a gene and they are being just broken down and degraded by the cell, then eventually, those neurons are going to stop connecting to the downstream neurons and sending signals to where they need to be. If that happens long enough, if you don't use it, you lose it, right?

So, I think from a neuroscience perspective, that is why some of the cells become dysfunctional stop again, it has been difficult to study that in a lab.

Hopefully, I did an OK job. (Laughs)



DR JEFFREY R HOLT:

Thanks! Did you have a second question? We can take a shot at that one, too.

QUESTION FROM FLOOR:

I don't have a microphone.

SPEAKER:

Here it comes!

QUESTION FROM FLOOR:

The second question was a little more specific.. So, the AAV subretinal you said. You noticed it is spreading and diffusing, and that is what made you think there were these neurotrophic properties. Andy with ProQR, you said that when you do subretinal injections, you noticed it was not spreading.

So... I know it's an mRNA, so comparing mRNA to AAV, but why would it spread with the AAV and not with the mRNA with the same kind of injection?

ANDY BOLAN:

That's a great question, and I will let Shannon kind of talk about that. The RNA therapy that ProQR is doing is not a subretinal injection. It is just a intravitreal injection into the fluid in the back of the eye. I was try to make a comparison with us trying to target the whole of the retina and, therefore, try to showstopping progression of the disease in earlier individuals as well as the advanced individuals — which we did see. We saw it kind of stabilizing.

It is very hard to then measure that at a registration perspective, which is why we have gone with the more advanced individuals and showing best corrected visual acuity. Actually, that is the first I have ever seen a gene therapy actually move out of the blebs, so that was very exciting for me to see, but I will let Shannon explain the difference.

DR SHANNON E BOYE:

I think maybe what you are referring to is the example that he gave about an early generation AAV vector, one placed subretinally and remained right within the surgical site. Yeah, and so, our AAV.SPR vector can spread. I think your real question is why it is spreading versus some of the earlier versions.

You don't just have your neurons and glial cells but the extracellular matrix, the glue that holds everything in place. There are proteins in that matrix that all the AAVs are either good at sticking to or not. It depends on what flavor of AAV you are using. We think the underlying reason our AAV.SPR vector is good at spreading is it lacks the receptor biology...

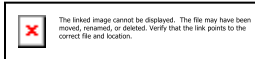
Audio lost

Audio restored

DR JEFFREY R HOLT:

Andy, do you want to take that one?

ANDY BOLAN:



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Absolutely! Very apologetic. I keep forgetting to do it, but I hope that my British accent gives me away with the panel. It is for specific to exon 13, and the reason for that is the science. We have seen when you remove 13 and part 12 and 14 together — very typified version — it can create a functional protein, which is what we want to do.

We haven't been able to show that in any of the other exons today, and we haven't gotten any more research to do that. The work we are working with is a group out of (Unknown Name). I'm happy to share loads of information about that and how exon-skipping works in the first instance, but it's very specific to exon 13.

QUESTION FROM FLOOR:

This is Donna. That is probably along those lines. We are new to this and... My grandson has -- it looks like from this conference that we have been able to discover, he has type D.

You all discuss a lot of the clinical, or 1D is what he have. You have discussed a lot of mechanical studies of 1C and 1B and someone 2A. Are some of the studies you're going to do, will it have any bearing on that? Or will it be different studies that will have to wait for?

Where can we go to get some specifics on those?

DR JEFFREY R HOLT:

This is Jeff Holt again. Another good question. Yes, with all of these, the devil is in the details. Only thing about personalized medicine, we really need to understand exactly, what is the gene effective? What is a mutation that is causing the dysfunction in that gene?

What I can say is, some of the... With the ASO strategies or gene-editing strategies does put it in the context of one particular gene or mutation, development of those platform technologies may be broadly applicable to other forms.

You will still have to work at some of the other forms associated with an USH1C, for example. But, the platform may still apply. Does anyone else want to add any more to that?

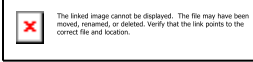
DR JENNIFER J LENTZ:

This is Jen Lentz. I thought for such a long time, I really limited on my own imagination.

So, I spent a lot of time reading Jeff's work and Shannon's work. The work at ProQR. And all of my colleagues and Usher syndrome. They have many more ideas than I have alone. This helped me to create new ideas for what we study in our laboratory.

For USH 1C. Jeff is trying and Shannon is trying. We are all helping each other to design better drugs. In all of the areas to make progress, the areas that I talked about earlier, the (indiscernible), the development of animal models, development of drugs, every type of Usher syndrome is being researched by someone in the world, I can tell you, in one or more of those areas.

Some of us in the research community know each other. We are calling each other by our first names. Others are in other countries and we just know each other's convocations. We pay attention to each other.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, what we learn does trickle out to others. And we redesign drugs, we redesign approaches, we really all do have the goal to development for everyone with Usher syndrome, at all stages. There is a lot that goes into why we choose one approach at any given time, for any particular type. any particular gene, any particular mutation.

As Jeff said, we have to listen to details. Sometimes, we know little bit more of the science. Sometimes we know little bit more of the vectors.

Sometimes, we are asking the questions with the research laboratory that we can afford to answer. You do not always get to ask the questions we really want to answer. So, we are always reaching out to the funding agencies to help us continue our research.

Does that help?

SUSIE TROTOCHAUD:

Can I just add -- this is Susie... My kids are now 21. Obviously, we named our foundation Usher 2020. Not only 2020 vision, but we thought we would have this done by the year 2020. I understand the frustration that comes along with research that is only going to help one mutation.

Or research that is only way to help one gene. I love what Jeff said earlier about "the rising tide raises all boats." I do see that the community around Usher syndrome, they are trying to find something that eventually helps everyone.

A lot of the treatments are going to be gene or mutation specific. Hopefully, that helps the brain more into the community. I know in another lens, they have tried to put together absorption to help fund other mutations.

Just the ones they are already working on. You can see that it helps raise all of those. That is a good thing. The other thing I recommend everyone do is, keep making noise.

Make sure everyone knows you are out there and that you are looking for something. And not everyone is looking for treatments. I understand that. There is a whole other component to this, which is supporting each other, which is realizing how important we all are, this interdependence in our community and celebrating all of our successes together. Making sure everyone has an opportunity for the best life they can live, that is important, too. All of this together is important.

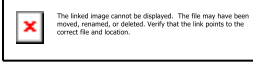
I appreciate the researchers that are doing their work whether it is specific or in general. I do believe they all want to make a difference in lives. Not just in animals and cells. So, thanks to those people. Like I said, keep making noise.

SPEAKER:

Great, thanks for the answers. More questions?

KRISTA VASI:

This is Krista. I will ask another question from a virtual attendee. Which piggybacks nicely on both Jen and Susie, your beautiful responses just now.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Just a slightly different take. "What is the outlook on the regulatory pathway for gene therapy like diseases like Usher syndrome, like 2A, has many different mutations on 72 different axons. It is not feasible to require big, robust, clinical trials for each mutation. That would be costly and time-consuming. Have you had discussions with regulators about this to see how they are thinking about this, to make personalized therapies available for all patients quickly, once the specific technology is proven?"

ANDY BOLAN:

This is Andy speaking. I'll try to touch upon that. The way we have approached it from a company perspective. Because, A, you are absolutely right. We are only a small biotech and trying to go through the regulatory process for every single mutation, we do not make any money.

That would be very costly. From our perspective, it is about creating a platform so we can set a precedent. We have been very open and honest with the FDA here in the US and the European agency. He wanted to show with LCA 10 and we will continue these discussions this year, as well as Usher syndrome. But it could be an inherited retinal disease wide platform applicable regulated pathway.

As you are having those discussions with the regulators, try and showcase that in these recognitions, actually the long nature of all the clinical trials which takes a lot of years to do, we could be more expedient.

So, we are having those discussions.

SUSIE TROTOCHAUD:

This is Susie. I will add to that. So, that is something that we have struggled with since the beginning of our research funding. And specifically started with the work that Jen has been doing - ASOs.

We really felt like we had a great treatment available and tried to push it through to get a clinical trial started. We hit that brick wall. Very few patients. It will cost a lot of money. Guess what, we will not even let you use the drug we have let you research.

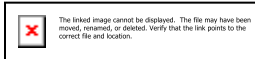
I understand that. From that, our foundation started a second nonprofit called "Adeleo Therapeutics" ... The company has been around a few years. We still have not gotten one in.

We are working hard to make that happen and to do the same thing, to create somewhat of a platform. In order to get rare disease that are good treatments, that we know have the possibility of helping patients, getting over what they call the "Valley of Death", where they actually get to the patients. It does not do any good to create something and then just leave it in the lab and never have patients able to use treatments.

So, we are all working towards it (Laughs). It is a tough haul!

ANDY BOLAN:

I can go into more detail about the regular trade pathway that we have done for Leber congenital amaurosis. The regulars do have mechanisms that you can trigger. We have prime designation and what does prime mean? That actually allows us to have more interactions with



regulators to share more data, as much as we can.

So, there are elements to it. We did not get that for Usher syndrome, is worth noting. I actually do not know why that is. I have to go back. If anyone is interested in that, I can write to them afterwards.

Just explaining why that was not for Usher syndrome but we did get the LCA 10.

DR JEFFREY R HOLT:

I would like to add one more thing to the conversation. I think a lot of this regulatory mechanism comes from a fundamental concept of the Hippocratic Oath that every medical doctor takes.

Right? The Hippocratic oath states that, "above all else, do no harm." So, that is a very important safety thing that the FDA has deepened their mindset. You know, they want to make sure before anything else, that what they are approving, what they are considering, that it will be safe.

Safety always comes first. And then the next step is efficacy. Does it work? They asked, "is it going to be safe? And is it going to be effective?" Really getting at the question, if there are multiple mutations, if one particular gene does each of those, does each one have to go through the same process?

I think the more the FDA gets comfortable with these different platforms, the bar will start coming down. So, at the very onset of some new technology, the bar is high. So, you have to really meet these high safety expectations.

But as that is demonstrated safe in people, in lots of people, like COVID vaccine, we know that is safe, their approval process will speed up. So, I think that is encouraging.

SUSIE TROTOCHAUD:

This is Susie. I would add something to that. The government -- National Institutes of Health, specifically NCATs, is working to create bespoke gene consortiums. What they're trying to do is, create this platform to be able to take more rare disease gene therapies from the lab into... I do not know where it is going to go. It is still in the early stages. Hopefully, something comes from that.

SPEAKER:

Great. Moving on to another question. Yes, over here.

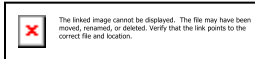
QUESTION FROM FLOOR:

Hello, my name is (unknown name). I am here with my wife. She is type 2. I hear these great questions that are detailed. My question is, do you have a centralized database somewhere where your research is posted that I read about? And then a quick second question, Susie, you mentioned making noise.

That is one of my qualities. I am good at making noise. Who do I direct that noise to?

SUSIE TROTOCHAUD:

I would say that the Usher Syndrome Coalition can help you make some noise. Definitely make



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

sure that you are completely connected and ask them what you can do. I think, you know, within the community, there are a lot of other foundations that are funding research and doing other things like the Usher Syndrome Society, Ush One See, Usher 2020 Foundation ourselves. You can contact us, and we are happy to help you make noise ourselves. We are working together for the common goal of getting treatments to patients.

DR JEFFREY R HOLT:

Yes, of course, there are the registries that you have heard about today. Get involved in those, getting registered is going to be an important aspect. Making noise... Write your Congressman! That's one of the best things that you can do. Tell them to increase funding for Usher syndrome research. That can make a difference. If they hear from all of us, if we all go home and write letters, it can start making a difference.

There are continuing efforts to pressure Congress and NIH to do this sort of thing, so yes, please do make noise.

KRISTA VASI:

I recorded a presentation that is on-demand on the app but advocating for Usher syndrome research funding, so please check that out. Become an USH champion. We are trying to garner as much support and noise as possible behind us. We have made some strides over the past several years, and we want to reactivate those. Join us! Thank you.

ANDY BOLAN:

Andy here. If you have any questions, do find us afterwards. I mean, we have used a lot of acronyms. Actually, the first ever workshop I did in ProQR, I listed out all the acronyms that my colleagues had used in the first month of being in the company to a room of individuals with inherited retinal disorders. I asked them to tell me what those acronyms were. They got none of them right, and I also got none of them right!

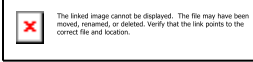
So, if you have questions afterwards, do grab myself or anyone here. We can try to take the sides to a plainer language way because it is very complex genetic stuff.

DR JENNIFER J LENTZ:

Just wanted to add, I think I heard a question about whether there is someplace you can go to read the information. The Usher Coalition website, (away from mic)... Other websites also have lots of really great information and basics on Usher syndrome.

I co-author a chapter -- to mac chapters on Usher syndrome, and that is posted on the NCPI (?) library called 'Gene Reviews'. If you Google that and in the search box type in "Usher syndrome", this is information about all the research studies that are ongoing with respect to patient care. This is also another great place to read about research and what we know and a list of resources available for doctors and patients.

I would mention, too, it is a great place to tell your doctor to go to because it is really written for that audience. What do we know? How do you get it? What are the symptoms? How do you treated? How often should you go to the doctor? Potential new therapies. That is a great place to go and read it, and tell your doctor to read there as well if they are looking for more information.



SUSIE TROTOCHAUD:

We forgot to mention earlier — this is Suzy, sorry — the Foundation Fighting Blindness is a very important foundation funding research. Let them know that you want them to fund usher research. The active and noisy with them.

QUESTION FROM FLOOR:

I have a question on immune responses to AAV vectors. I know there's... I think it is for Shannon mostly, but for any panelist. AAV triggers a host immune response. I'm curious to know whether the dual vector, whether that's an issue or whether that has been addressed. That's my question.

SPEAKER:

That is a great question. We are fortunate in the subretinal space, this area in the retina is very immune-privilege. We have developed certain issues and organs over time that wrecked very differently to antigen assault. In other words, you can get very inflamed and read. But when you get an antigen in your eyes, we have evolved that we react faithfully to antigens. If you reacted the same eye, you might go blind.

Different areas of the eyes respond to antigens or AAV vectors differently. There have been a lot of news recently about intravitreally AAV leading to an immune response, that's because the vitreous is not as immune-privileged of a compartment as the subretinal space. For USH1B, the subretinal space is worse, so we are not worried at all about an immune response. We have seen that these vectors are super well-tolerated and the monkeys we have injected to date at a range of doses.

We have seen biodistribution, another with, looking at where the vector genomes go in the rest of the body. It compares very favorably to the early generation AAV's.

To answer your question about whether you're gonna see different immune response to a dual vector than a standard AAV vector, we don't think so. It is the same AAV capsid. Some of them have the front half of the gene, others have the back half of the gene. We expected to be safe and well-tolerated in the subretinal space.

DR JEFFREY R HOLT:

Thanks, Shannon. Over here?

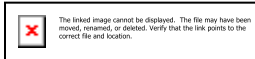
QUESTION FROM FLOOR:

Hi, I'm Leslie. My daughter has USH1B. I have a two part question. The first part is clarifying. It sounds like all the vision research is preserving remaining vision as opposed to restoring lost vision. I want to clarify that. Secondly, are there any near-term promising research actually restore lost vision?

DR SHANNON E BOYE:

Sure, I can take the first part of that. Sorry, I'm Shannon Boye. (Laughs) We don't know, is the answer to your question. What we are hoping for at the bare minimum is to prevent future loss of the photoreceptor cells. So, to halt progression of the disease with these AAV vectors.

But I have talked with clinicians in the space, like at OHSU, that they feel that there is some potential for a boosting vision post gene therapy. But again, going back to the issue of there



aren't very good mouse models of these diseases, it has been really hard for us to ask these questions. In many ways, the clinical trials are going to be the ultimate experiment where we actually get to answer that question.

And then your second question...? That was it? Thank you!

SUSIE TROTOCHAUD:

I'm sorry, I just want to add that we are actually funding some stem cell work. Again, this work is going to be more mutation agnostic work, so it is more promising for people, but it is a little bit further behind some of the other work that is being done. It's not showing quite the results. They are still try to work out does a lot of things aren't working right. That is the clinical way a disabled (Laughs) because that is much as I can give you.

There is work out there being done by a lot of people. She talked about the mouse model, and our pig model is being used in Germany for some stem cell work right now. That's just one more thing that we hope to see some promising results from.

Yes, there are some things out there. They are just a little further behind, and I don't think they are been discussed today.

ANDY BOLAN:

Just on the stabilization piece, there are... The Stellar study did show that stabilization, and that's very important to emphasize because we didn't see across the 20 participants and improvement in vision, but we did see the untreated eye did decrease, as we expect from the Natural History Studies that showed that. But we did see a stabilization, which, to us, was a great thing to see.

It should be noted from a regulatory perspective, it is expected to improve vision and treatments, which actually makes the hurdle a little bit harder, a little bit higher for companies like ourselves to demonstrate that. Therefore, that is why we have gone with the advanced individuals because we would expect their untreated eye to deteriorate faster and, therefore, begin to show that separation with the medicine in one eye and not the other.

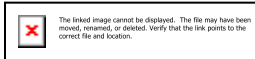
That allows us to go to the regulatory bodies, such as the FDA and EMA, to say that, "Look, we think there is something here to look at."

QUESTION FROM FLOOR:

I have two quick questions. One is to tie back to the N-Acetylcysteine. I take that for neuroprotective factors with the increase of nitric oxide in blood. Is there any that would counter indicate that with Usher syndrome from taking it prophylactically? you said not to take it, but I'm not sure if this is if you just overdosed on it?

SUSIE TROTOCHAUD:

Again, I encourage you to listen to Doctor (Unknown Name). He talks about why you shouldn't take NAC now. One of the things is, first of all, I do believe there is some research out there that now they are not suggesting that people take over-the-counter NAC at home. You should look into that just in general if you are taking it and don't have Usher syndrome because there are some people -- that is why it's available out there.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Specifically, for the trial, you cannot be on over-the-counter NAC. You have to have been off of it for quite a bit of time before the trial starts if you want to be part of the trial, so definitely not.

The biggest reasons... I will try to generalize what Doctor (Unknown Name) says. These things that are sold as, like, vitamins, they are not regulated, so you really don't know what you are getting. You are probably — in fact, it has been shown you are not getting pure anything over-the-counter like that, so it's probably not helpful to you anyway. It can actually be harmful. So, it's not recommended to take NAC for anyone outside of this.

The actual medication would be getting in the trial is purified, and you are getting what they say you are getting. That is what I would tell you with the N-Acetylcysteine.

QUESTION FROM FLOOR:

My second question is I have two kids with 2C. They don't have any signs of retinal degeneration yet and neither have hit puberty. I don't know if it is correlated, but I'm not sure. Is there any link between the hormones and that kind of kicking off the retinal degeneration? Has there been any longitudinal studies about pregnancy and the different hormones there? Anything of that nature? That's kind of my question.

Dr (Unknown Name) mentioned mouse models where the mice had lower progression. I'm assuming some kind of aerobic exercise? It's not an exact number, but anything that would link to that? 60 minutes of running, or something trying to stave off the degeneration and hoping something becomes available at some point.

DR JEFFREY R HOLT:

Does anybody want to field that?

DR JENNIFER J LENTZ:

This is Jennifer Lentz. There have not been a lot of studies on lifestyle choices and whether or not they can prevent faster degeneration or speed them up. There are a few studies, and in general, I think there is a feeling that the healthier the lifestyle you live, the healthier it is for your eyes. Good things, good vitamins and nutrients that you get from healthier foods that are good for other cells in your body are also very good for the cells in your eyes.

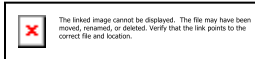
Fortunately or not, the same goes for exercise. Exercise is good for many cells in your body, including neurons. So, doing that regularly is recommended to help slow down degeneration, cells that already have another stress to them.

I don't remember the other question... Puberty? I actually had this question before, and if I remember correctly, some ophthalmologists have seen patients in puberty for during pregnancy that seem to have a progression in their vision loss during that time. Others have not.

I'm not a clinician and could not answer you from my own experience, but I would be thrilled to connect you via email to our clinical team, and you could ask them directly what their experiences are.

DR JEFFREY R HOLT:

Yes, another question over here.



QUESTION FROM FLOOR:

Susie, this is for you. I know that Nacuity is during the clinical trial in Australia. And I know there are similarities between it and what Doctor (unknown name) was doing. Could you address the differences?

SUSIE TROTOCHAUD:

This is Susie. I will not do it too much because I do not want to speak incorrectly about either one. I do know about Nacuity. My husband sits on the board with Nacuity, one of the original advisors for Nacuity...

I will just quickly, and then maybe Jane, if you have any questions. Early on, when acuity was looking to do the trial. My husband helped them find some people in Australia that help them get the trial started. I can say with all honesty, I do not care what works, I just want someone for patients.

I am not here to say one is better than the other. The original work from Nacuity did come from Doctor (unknown name) lab... They're both trendy is coming to patients. That is all that matters to me. So, go ahead.

COMMENT FROM FLOOR:

I would echo that. I think Nacuity and I were trying to find the best route to the quickest treatment. There were some challenges for us. We have N-Acetylcysteineamide, which is a slightly different molecule at Nacuity.

Peter worked with us to look at it with his animal models. In those models, it looked like it was more bioavailable and more efficacious. Perhaps you could take a lower dose and get the same effect. We ran into some issues with our R&D in the US at the FDA.

And rather than jump through the hoops that they were requiring us to jump through, we went to Australia. We have been in clinical trial now for two years. Almost. September will be two years. We have done an interim safety analysis and shown that it has been safety and tolerable for that timeframe, at the dose patients are taking.

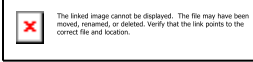
It is in Usher syndrome patients across all genetic issues. So, it is gene agnostic, is what we believe. We are collecting the genetic information from our patients, so we can understand if there is a difference in how it affects different groups, or perhaps at different times and different stages of the disease.

We are in the process of doing an interim analysis at the be any of the next year, which we will hope will give us a reading of how things are working. We are in the process of using safety data that we have just gotten back from the interim analysis from this clinical study.

... And potentially open a clinical site here in the US. We will definitely be in contact if that progresses. We will be looking to you guys to help us. I would just like to reiterate, the patient's are really what help us do what we do. I cannot say enough about our patients.

They are amazing! Thank you guys all for your support. It is incredible!

SPEAKER:



Thank you for that question. I didn't mean to mention that, so thank you.

KRISTA VASI:

I will ask another question for a virtual attendee. Can you expand why pink and monkeys are good animal models for the eyes?

DR JEFFREY R HOLT:

That is an important question. Very often, the way we think about this is, to start with the lowest animal model we can that reproduces some of the features. So, you have heard me talk about the zebrafish. You have heard us talk about mice.

Sometimes these are good models. But sometimes, they are not perfect. Actually, there is no perfect model for a human. Only another human is really going to be representative.

With larger animal models, thinks Caleb. We do get closer evolutionary. The genetic sequence is more similar to a human. The size of the structure is more similar to a human.

Some of those physical parameters connection make a difference. The downside is, these larger animal models, pigs, monkeys, and so forth, are much more expensive. They are harder to maintain. They often have a longer lifespan. So, it may take even longer to get to the results you're looking for.

If you can do it in a few animals and demonstrate again safety and efficacy, that brings you much closer to meeting the FDA standards for moving into a clinical trial.

So, that is a general answer about animal models. I do not know if you want to add anything specific to the retina?

DR SHANNON E BOYE:

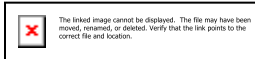
This is Shannon Boye. One of the biggest reasons that monkeys are the best model for the retina, for testing these therapies come is because I have a phobia. That is a very specific feature entity retina and the nonhuman retina, that has explicitly photo cone receptors. It is literally an area of the red number all of the secondary men neurons move out of the way to allow light, the most direct path, to those photo con receptors.

It is in that region of the retina where photoreceptors are maintained and a lot of Ushers patients. So, what does it look like in the mouse? Most have photoreceptors. They are even leading to beaded across the retina. There is no specialized cone-exclusive region. So, when we tested these therapies in mice, all he can really gather is, "are we expressing the gene of interest?"

Like I said, most of these mice models do not have phenotypes. It is that phobia in the Monkeys that is really important for validating these therapies. For the pigs, I have never worked with pics, but minor setting is that they also have a cone in the rich region of the retina.

SPEAKER:

The non-human primate are the best way to go. They are just a lot more expensive. So, I did want to add that, science is really evolving. There is a lot of work now in (indiscernible).



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, basically growing our retina from human cells. And we are still -- it is still not perfect. It is going in that direction. More and more work is taking place without using animal models until safety and toxicity studies.

Which will probably always require some animal models. I think you talk more about that, Andy, right?

ANDY BOLAN:

You, from our perspective, we actually use animals and the economics as well. We grow them in our labs in Leiden. And actually, they are amazing. You take a skin biopsy and you can grow a retina in a dish. As a company, that allows us to test dosing and see where we can make an effect but that medicine.

It is not only animals we use, but also the retinal... Which is fantastic innovation in science. It allows us to do a lot more outside of the human eye than we have ever done before.

SPEAKER:

Wonderful, thank you. Krista.

KRISTA VASI:

This is Krista. We have three minutes before we have to break for lunch. I am sure each and every one of the panelists here with us today are happy to answer any of your questions as you see them throughout the day. If anyone else has burning questions, please find them. I am sorry, we cannot catch them all.

Julia will say a few words before we break for lunch. Thank you, Jeff, Jen, Susan, Andy. We so appreciate your time! Thank you!

(Applause)

JULIA DUNNING:

Thank you to our moderator and our panelists. I just want a quick note, Monica is a firecracker and has been doing all of our social media posts for the past year or so. In the 14 years we have been doing this, I have not seen the science researchers and doctors stumped.

So Monica (Laughs) Kudos to you! We love having you as part of our community!

(Applause)

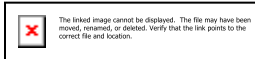
JULIA DUNNING:

Secondly, I would like to have the exhibitors stand. Please, exhibitors, we are so happy to have you! If you can visit them, they are here!

(Applause)

JULIA DUNNING:

They are here for you. They are here to talk to and explain their wonderful devices and equipment. Please stop by. So, before we break for lunch, one more prize sponsored by EdiGene.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

We are going to be looking for... Krista Webb. We will find you. Finally, we will break now. We will do a nice long lunch. Lunch will be available out there. You can bring it back into here.

We will see you all back here at 2:00 PM. Be on time for more great sessions! Excellent, thank you.

(Applause)

**** BREAK: RETURNING AT 2 PM CT ****

JULIA DUNNING:

Alright! Alright, I'm going to ask everybody to take their seats again. We are going to get started and get the afternoon rolling. (Pause) Excellent. And where going to start with another prize drawing! (Humming)

And we have Jordan Edwards!

(Applause)

JULIA DUNNING:

Alright, Jordan!

OK, I'm going to introduce Lynne Gilpatrick, who is then going to introduce our next speaker.

LYNNE GILPATRICK:

Good afternoon, everybody. I hope you had a good lunch and that you are feeling refreshed. My name is Lynne Gilpatrick. I have USH2A. I'm originally from Rhode Island and Massachusetts. About four years ago, my family and I moved down to Florida, and I am now a co-ambassador for the state of Florida.

I have a Masters degree in social work, and I have worked in Early Intervention for 25 years, so I have experience working with children with developmental delays and their families, transitioning them from Early Intervention to the school systems.

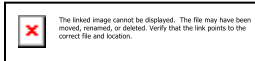
I'm really excited and really honored to introduce you to Lane McKittrick. Thank you.

(Applause)

DR LANYA MCKITTRICK:

Hi, everyone. My name is Lane McKittrick. Thank you so much for having me today. Thank you for the warm welcome. Just a little bit of background about myself if you don't know me. You met my son Conner this morning. He introduced Dr Boye, and him and my younger son, Dalton, really why I am here and why I do this.

I'm a special education researcher. Because of my experiences as a parent, I went back to school and became a special education researcher. I specialize in family research specific to



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

deaf-blindness, and what's really important to me is how we work together to serve the kids in this population.

So, you know, I know that I would not be where I am today if it weren't for the great educational teams that came together with me in order to support my kids to be able to do what they do and be where they are at.

Conner mentioned this morning that he is going to graduate school next month, it's really because of this team effort that everybody came together. So, it's really my goal to figure out how to help families identify the challenges that other families have experienced so that we really can build those relationships with school teams and get the unique needs and individualized needs met.

I have a nonprofit called Lane of Inquiry where I do educational research specific to deaf-blindness, and I also support families along the way. I don't have very much time today to cover this topic, so if you have any follow-up questions, please feel free to reach out. I would love to help you.

Yesterday, my colleague Edgenie Bellah with the Texas Deafblind Project and myself did a family workshop, which was great and well-attended. We talked about some of these issues. So, for those of you who attended yesterday, thank you, and hopefully, this is just a nice review of what we talked about.

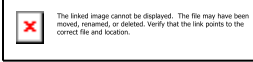
So, you know, I mentioned my research. I think it's really important because we need to collaborate together to understand some of the challenges that parents have experienced.

In my research, I have talked to many, many families about their experiences when they talk to school teams. Because this is so rare, educators have often not met a child with Usher syndrome, so they need to be educated on what those needs are. Professionals misunderstandings needs not because they want to misunderstand but just because they have never met a child with Usher syndrome or who is deaf-blind at all.

That pushes parents to push for supports because the parents know their children the best. Parents also let me know that it's really important to foster student self-advocacy. How do you work with students at a young age to be able to self-advocate for themselves? You know, and that something that I believe can be started at a very young age because, you know, students can be able to identify what their needs are better than anyone else. So, how do we support them in order to be able to build those self advocacy skills?

Also, it's really important for families to have access to other families. I know I have been doing this for about 20 years, but still, there are times when I am meeting with an education team, and I don't have the answer for something. So, it's this community of Usher families that I rely on constantly. There are still times when I'm trying to problem solve something, and I need to reach out to another family, so that's why this community is so important.

Also, families -- you know, yesterday, we talked about with Rebecca's presentation all the emotional impact that families have. There is the grief cycle and so many other things going on, and it's important for educators and teams working with families to understand what families may be going through.



The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

As I mentioned yesterday and Rebecca's presentation, it impacts the entire family, not just the parents or the individual with Usher syndrome. The entire family is likely supporting to make sure that they have what they need and the support system.

Some other things that parents have reported, that unfortunately, sometimes teams don't understand the value of different communication modes, and, you know, I find that this is often the case, especially when we are trying to find a preschool for a child. A school district may have a preschool that has an oral deaf program, but the family may have chosen ASL as the communication mode, and so, you know, school district may try to force that family into a program that just isn't the right fit.

You know, can be really, really frustrating for a family to have a team not understand what the families chosen communication mode is.

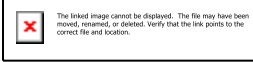
Also, because of vision loss, hearing loss, balance, sometimes other disabilities, there is a large team of service providers that are supporting the family and the child, and so, that requires an enormous amount of collaboration not just with the family but also between team members. So, if the teacher of the deaf is working with the child and the teacher of the visually impaired is working with the child, if they are not on the same page and working together, it can be a real challenge.

The other thing is transitions. When I think about transition, oftentimes, you are thinking about when a child turns the age of 16 and gets ready for whatever is after high school, but there are so many other transitions that are important. So, the transition, for instance, into preschool if you are moving different schools, maybe going into the school system. Then, you are moving into kindergarten, which is a whole other ballgame. You are maybe potentially moving into middle school, high school.

But some of the other transitions that are very important, too, are each year, starting with a new teacher. So, that's a whole other transition. Sometimes, even having a substitute in the classroom is a transition and is going to interrupt the progress of the student. So, you need to have plans in place in order to address how you are going to address transitions.

And there is always constantly changing the needs and environments. I know that if my kids have been tired, they are stressed, something is going on at home, so many other things... You know, with the pandemic, you can see all the impacts. So, it's constantly changing. The vision, you know, with progressive vision and hearing loss. What may have worked yesterday may not work today for that child. So, being really, really willing to problem solve and being constantly flexible in making changes in order to assure that we continually have the correct supports in place.

So, what does this look like in the classroom? I think it's important, like I said, that it's not a one-size-fits-all approach. It is called a "individualized education plan" for a reason, but it's not always the case. Because Usher syndrome is so rare, team may not know. Or, they may have another child with Usher syndrome in the district or know somebody, they may say, "This is what we did for this child. I'm sure it will work for your child as well." But that is not the case. We all know that we are different and have different needs.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

One other thing in the classroom that is really big is seating. So, when you think about it, when you think about the hearing side of things, it might be appropriate for the student to be close to the interpreter, or if they are using hearing aids or hearing device, they may want to be in the middle of the classroom so that they can hear their peers better.

From the vision perspective, teacher of the visually impaired might come in and say, "That child should be in the front of the classroom close to the board/close to the teacher." Those things are at odds, so finding a balance and trying new things, seeing which seat in the classroom is going to work best. Again, you can see how that would really help to have a collaborative environment to be able to brainstorm and problem solve.

And also, checking for understanding, because I see a lot of educators coming and just asking students, "Hey, do you understand what's going on?" Well, instead, the students don't know if they missed something in the classroom. If you just ask them, "Did you understand what I said?" They are going to say, "Yes, I understand."

Really, what you should be doing is talking with that student in saying, "Can you repeat back to me what your homework assignment is?" If they can't repeat that back, you know they have missed something and you know you need to repeat that, go over it with them, and make sure they are following along.

Auditory and visual fatigue is huge. At the end of the day, the kids are working really hard to access everything that's going on in the classroom, and I find in the last couple years, with the pandemic, it's even worse. We are all tired, stressed, lots of things going on. For our kids, that is a real big thing.

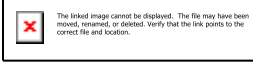
And also, I find that it gets worse as the year goes on. The year starts really great, then you get hit, like, Christmas break. "Great, I'm going to have a couple weeks." Then, January rolls around and the kids are just exhausted. Because of this, it's really important to keep evaluating what is working and what needs to be adjusted.

Through all this, you can see how communication is vital. Parents may see something different at home than what is happening at school, and vice versa. If you are not communicating, it may take longer to be able to resolve anything that's going on.

The other thing is balancing services and needs. I have heard this a lot from families, like yesterday, talking about "When do I start braille? When do I start cane training?" There are all these things. If you're trying to do everything all at the same time, it can be really overwhelming! So, how do you balance all of those things so that you as parents are not overwhelmed, you make it the best experience for the child, and still really thinking about how to fit it all in.

There is no right or wrong answer, but it really is a challenging balancing act.

Through all of this, accommodations are absolutely vital. I'm not going to get into a lot of it, but if you have the appropriate accommodations in place, if you have extra time on tests, if you have pre-teaching of concepts, if you are able to use audiobooks or what have you in order to access the courtroom, you can do amazing things, but you need to make sure you have these accommodations and supports in place.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, what can you do about it? How can you make this a positive experience and collaborative in order to get your child's needs met?

Well, the first thing that is really important is to ensure that somebody with deaf-blind experience is on your team because often, you have somebody who understands hearing loss really well, somebody who understands vision loss, but they may not understand the impact of both together. You can reach out to -- I work with a Deaf-Blind Project. My colleague, Edgenie, works in Texas with the deaf-blind project. There are people and organizations to ensure that somebody who understands deaf-blindness is there with you along the way.

I mentioned earlier that you really need to have the team understand what is going on both at home and at school, so that takes really, really good communication. It's really the key to collaboration and everything, is it comes down to that collaboration. And that can make a really big impact on the child, and that's why it's important to have understanding that is not just deafness and blindness but the combination of those two things in the classroom can have a really big impact on the child. That's why it's important to have somebody who understands deaf-blindness.

For my younger son, we put together a narrated PowerPoint about "Here's what Usher syndrome is. Here's what my hearing loss is. Here's my vision loss. This is what this looks like." He provided to office teachers who are going to be meeting with him, and we sent it to them before the beginning of the school year.

It's not just about hearing loss and the vision loss. It's like, "I'm a black belt in tae kwon do. Here's what I like to do. Here is what works for me. Here is me as a person." It can be really effective because at the beginning of the school year, if that transition doesn't go well, it can be a real challenge to be able to get all of those supports in place. And so, if the team knows about the Usher syndrome and deaf-blindness and the need about that particular child, it can really help.

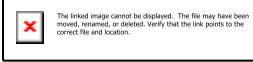
And it's important to understand that we need to have appropriate goals. I have one comment that I heard from a parent, and one of the team members told her, "Honors classes are just not appropriate for children like yours." It's heartbreaking. These are stories that happen, and I know that anything is possible. My son is going to graduate school! He is very smart.

So, things like that... Like, kids know. How do you make sure that the goals that are on an education plan are really high enough that they are achievable yet stretches them to be what they can be?

It's also important to help students, like I mentioned, be strong self-advocates. I know there are several instances where my son can really better self-advocate for his needs than I can. We have had sometimes when there are conflicts on teams, and he was able to identify and describe what's going on and get the services and support he needed better than I could, honestly.

You are an important player on the team. You aren't just sitting in the meeting. You are critical, vital. You know your child better than anyone else, so it's just important to really remember that.

And lastly, I want to leave you with this: it's important to help the team think about current and



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

future needs. So, that is where I get this "What is your Northstar?"

A lot of times, school teams are just focused on today. It's important -- you know, you do have to balance this, but it's very important to think as a family, what is 10 years out look like? What is 20 years out look like? Do I want them to go to college? You need to be able to map that back.

I remember when my son, Conner, was doing his transition IEP, and he looked at his IEP goals and said, "I want to go to college, do these things. These goals that you have in place today are not going to get me there." That was an eye-opening experience, and I think involving the child in this process and talking about what is your Northstar, what you are wanting to accomplish — that can be changed every day, but just continually thinking about your dreams for your child, your vision, and working step-by-step to get there.

Like you saw this morning, it's possible. Anything is possible. It just takes an enormous amount of work, and it takes a large team of people collaborating together to make it possible.

I'm really lucky that we had great teams in place to make that possible. You know, it's not to say that we didn't have challenges, but I think having those relationships and building this together can really make a difference.

Thank you so much. I have so many more resources on my website. Feel free to reach out if you have any questions at all. Sorry, interpreters. I know I talked fast. Thank you.

(Applause)

STEPHEN BROWNE:

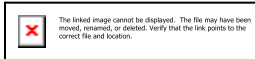
Good afternoon! I am Steve Brown from San Antonio just down the road, and you don't have to hear me talk. I'm going to introduce the next speaker, who is Trevor Turner. He is going to speak on 'Crafting a Career with Usher Syndrome'.

I know something about that because we have two children who are now ages and 35, both of whom have Usher Syndrome Type 1B and have crafted successful careers themselves. One is a CPA and works in San Antonio for an accounting firm, where she has been. The other one lives here in Austin and works for a company where she has been for seven years that places people with disabilities in government jobs. I think that's why I was selected to introduce Mr. Turner.

He is the Public Policy Director for the Minnesota Council on Disability. He suffers from USH2A. He has been wearing hearing aids since he was two years old. He came from a family -- his father worked in the Air Force, so he has been all over the world. He got his bachelor's degree from the University of Missouri and a masters from the University of Denver.

He works for nonprofits, international nonprofits. He has worked for Starkey with -- as absent international Program Manager for them. He has traveled over 70 countries around the world and considers himself a global advocate for people with disabilities, and he is going to tell you about crafting careers for your children.

Thank you.



(Applause)

TREVOR TURNER:

Afternoon, everyone! And also, Happy Disability Pride Month! July is Disability Pride Month, so today, we should think about that, what are disability's mean for us, and how they contribute to our lives and the positive things that they bring.

Today, I'm going to be talking about 'Crafting a Career with Usher Syndrome'. This is the clicker, right? OK...

As was mentioned before, I have USH2A. I have had it my whole life. I was born with hearing loss and received my first pair of hearing aids when I was two years old. I've been very lucky to have a long career and really great, interesting career. I'm happy to talk about it today.

But I'm not a career expert or a vocational rehab specialist or anything like that. I hope I can tell my story and you can draw inspiration from that. I will give you some advice I have learned in my own personal career.

So, I was born in South Dakota. As was mentioned before, my dad was in the Air Force, so I grew up all over the world. I spent most of the 1990s in Japan. As you can see, there's a picture with my sister and I wearing traditional kimonos and traditional rice field hats. It was a really great childhood. I have really supportive parents. My mom and dad are featured there as well. Today, I live in Minneapolis with my partner, Tyler, who was in the middle top photo there.

My career journey started in high school. It started with my guidance counselor, actually, who was very knowledgeable about all the different disability services and programs that were offered in the state of Missouri, which is where I graduated high school.

She encouraged me to apply for vocational rehabilitation in Missouri, and because of that, I was able to go to the University of Missouri for my undergraduate experience.

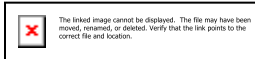
I loved undergrad. I thought it was one of the best times of my life. I thrived in school. I'm a big dork. I love learning lots of different things about a lot of different things.

But I also worked in politics. I study politics, clinical science. I was very fortunate to have opportunities to work for the Hillary Clinton campaign, the Barack Obama campaign. I also served as the Disability Chairman for College Democrats of America from 2008-2009. I really enjoyed that experience.

It was in college that I discovered I had Usher syndrome. I was 19 years old, sophomore in college, and I decided to go to a retina specialist because I was getting tired of this night blindness thing. That is when I got the diagnosis. This was in 2007.

2007, there wasn't a lot of resources, and the diagnosis was very scary. It still is, but at least now, we have better resources than at the time. The Usher Syndrome Coalition was yet to be founded for another year, and so, it was really hard getting that diagnosis that I was going blind.

But I did use that as my motivation to kind of change my career path, and I decided that I wanted to see the world while I literally could still see the world. I decided while in college to study



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

abroad in Ghana, West Africa, and also in Germany as well. It was because of that I was able to triple major in undergrad. I graduated with political science, international studies, and German degrees, which then allowed me to apply for a State Department fellowship program.

This program took me to Germany, and I worked in German politics for a year, which was really cool. I got to experience German politics and compare and contrast it to American politics. They are very different, but similar in a lot of ways, too.

So, this year-long experience really kind of, you know, gave my career a big boost as far as the opportunities I was able to have.

I decided during that year of trying to decide what my next steps would be -- I decided not to put all of my eggs in one basket. What I did was I applied for a program to teach English in South Korea. I also applied to join the US Peace Corps, and I applied to grad school. I hoped at least one of those would work out.

It turned out all three worked out! I got accepted into all three programs. I was very fortunate that I was able to defer admission for my grad school experience and my Peace Corps by one year so I could go teach English in South Korea. I got to live in a small village just outside of Seoul, South Korea, and I taught English for a year.

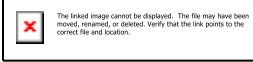
It was kind of funny. The principal, when he first met me, saw my hearing aid and was like, "Do you really speak English?" Fortunately, I was able to prove that I do, in fact, speak English and that I am a very good English speaker, and he really liked me. I really enjoyed teaching his students and getting that experience.

Then, after my year in Korea, I moved to Denver to teach -- not to teach, to study at the University of Denver and get Masters in international economics. What I wanted to do there was I actually decided to combine my Peace Corps experience with my Masters. I did a Peace Corps Masters International program. This allows you to do your Peace Corps service and your masters in conjunction.

I ended up serving in the Peace Corps in Armenia, very mount this country in the Caucasus of West Asia/Eurasia area. As a former Soviet Union country, so I really got to experience what it is like to live in a former Soviet Union country. Very culturally different from the US. I served as a community development volunteer and worked with nonprofits in Armenia to make them sustainable and to grow, that kind of thing.

After I finished my Masters degree and finished the Peace Corps, I wasn't quite ready to go back to the United States. I was still very motivated to see even more of the world while I still can, and so, I ended up moving to Rwanda. I actually raised \$10,000 just through fundraising like a GoFundMe. I did my own kind of Flight for Sight program. I raised \$10,000 to go start a business entrepreneur should program and wanted to help marginalized women start their own businesses and to learn computer literacy skills, learn English, and learn how to be entrepreneurs.

You can see, few of the women that we worked with, they all started their own businesses, and I'm proud to say those businesses are still operating today. So, I really enjoyed living there.



The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

But I will say... Living in some of these more developing countries is a bit tricky with my Usher syndrome. They don't necessarily have the right lighting at night. When I was in Rwanda, I actually fell into a sewer. I have a lot of funny at night blind/blind stories at some of these countries that I could definitely share later, but, you know, I definitely had to be careful, and I definitely had my mom at the edge of her seat all the time when I was telling her these stories.

But I really loved my experience in Rwanda.

But there was something missing, and I realized that I didn't feel connected to the work that I was doing, and I didn't really know why. But I was very fortunate that the Starkey Hearing Foundation — and many of you are probably familiar with Starkey because they are America's only hearing aid manufacturer, based here in Minnesota where I live. They have a nonprofit foundation, and I actually got a volunteer with them on their mission in Rwanda.

And I absolutely loved it. And then, I realized the thing that was missing was my ability to empathize with the people that I served. When I was working with these women... You know, these women, some of them were survivors of the genocide in Rwanda in 1994, and they just had very different lives that I couldn't possibly comprehend. I realized that I needed to be able to empathize with the people that I'm working with so I can be a better public servant.

During the Hearing Mission with Starkey, I realized that these people, who are wearing hearing aids, and I were hearing aids too. This was really great. Starkey ended up hiring me to be there International Program Manager.

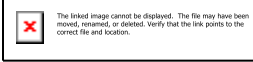
I worked for Starkey for almost 5 years. I got to travel all over the world. I worked in six countries around the world with Starkey. I was there to help develop hearing healthcare programs and all the different countries I worked in. This was my dream job. Like I said, I was able to empathize with people that I work with, and my disability was an asset.

I had spent so much time thinking that my disability was going to be something I had to overcome in my career, but this one, I got to where my disability as a badge of honor. I realized how important that was for my career as well.

Unfortunately, the pandemic shut the Foundation down. We were unable to work, and with the uncertainty with everything, we weren't able to fundraise, and so, we felt that the right decision was to shut everything down so that our team to go pursue other careers. That included myself! I was actually unemployed in 2020 for a few months, and that was really hard, just like 25% of the country at the time.

I really felt like the rug was pulled out from underneath me because I had this dream job that I really loved doing, and I really wanted to keep doing something like that. I really wanted to have my disability be an asset, be able to serve and empathize with the people that I worked with.

So, I did a lot of networking with different disability organizations. I started meeting people on Zoom, lots of Zoom calls. I met with people from the ACLU, with different disability advocates that has helped pass the ADA. Finally, I was actually able to land a job with the Minnesota Council on Disability as their Public Policy Director, which was very lucky because, you know, at the time, many people were struggling to find work, and I was able to find not only a great job but also a job that was a level up. I went up to a director-level position.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So now, I get to work with our state -- our governor and our state legislature advising them on different disability issues. As you can see, these are Zoom calls I have had with the governor of Minnesota and our Lieutenant Governor in all the different legislators in the state. I really enjoy this job. Again, with this job, disability is still my asset, and I got to advocate for all disabilities, including rare diseases.

Just this past year, we moved Minnesota's Rare Disease Advisory Council After the Minnesota Council on Disability, so now I get to advocate for people with rare diseases in their state legislature.

So, I want to close with five things that I kind of learned in my career that I think might be helpful for the people here.

The first thing I always tell people: view your disability as an asset, not a liability. People with disability, we are problem solvers and innovators because we have to be; it's a necessity for us. That's actually a really good job trade for a lot of employers. A lot of employers want that innovative, out-of-the-box thinking. When you view your disability as your asset and all the life experience you have had because of that disability, you suddenly are able to sell yourself better in job interviews. You're able to sell yourself on your resume, job interviews, etc.

The second thing is to utilize vocational rehabilitation or any kind of disability service. I had vocational rehabilitation in Missouri and Colorado. Now I serve on a counsel to advise on vocational rehab because I really believe in its power and the opportunities it can provide to people like us.

Next is to take advantage of the affirmative action programs. I know that these days, that is kind of a buzzword and politically charged, but these are programs that benefit people with disabilities. These are the programs that give you a leg up, give you a little bit more of an edge in the very competitive hiring.

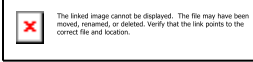
The federal government has a program called Scheduling Hiring Authority. If you get a Schedule A letter, you can attach that to your resume, that gives you a little bit of a competitive edge over other candidates, nondisabled candidate.

In our state of Minnesota, we have a similar program called Connect 700, which is an affirmative action program for people with disabilities at the state level.

Supplement government, there are lots of different affirmative action programs, and even in the private sector as well. I target, which is headquartered in Minnesota, actually actively recruit people with disability's as well. They are always looking to increase their numbers because they want to have that diversity, and they recognize what people with disabilities can contribute in the out-of-the-box thinking that we have.

Always take advantage of these affirmative action programs.

Then, know your rights. Get familiar with the ADA, especially Title I for your employment rights. This month will be the 32nd anniversary of the passage of the ADA, so really, get to know the enforcement agencies to help enforce the rights for people with disabilities because you want to



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

be able to recognize, you know when your rights are being violated. You want to know what resources are at your disposal when you feel like maybe you didn't get a job because of your disability.

And my last thing is to network, network, network. Networking is really, really important. I've learned it's not about what you know but about who you know. You are already doing it here at the Usher Syndrome Coalition just by being here and meeting other people all across the country. You are networking, networking doesn't have to be a big, scary corporate thing. It can be just making friends in different places and growing that network. The bigger your network is, the more extensive your network is, the more valuable it becomes and the easier it is to find those job opportunities that can really help you move along in your career.

So, that's pretty much all I have, but I hope that people please come to me at any point during today, or you can look me up on the social apps. You can get my contact information. I'm more than happy to talk to anyone here.

Like I said, I'm not an expert. This is only based on my own experience, but I stand on the shoulders of a lot of people who have helped me out, and I want to be able to pay that forward. So, please, reach out to me at any time for advice or letters of recommendation or anything like that.

That's it! Thank you very much.

(Applause)

ROBYN STIDD CULPEPPER:

Hello! I'm Robyn Culpepper. I hope you can all see me appear. And pretty short. I have USH2A, and I'm excited to introduce our next speaker. For myself, you can find me on YouTube. I'm also one of the Texas Ambassadors. I also work very closely with Ava's Voice. Feel free to find me if you want to connect or anything like that.

I'm excited to introduce Dr Shanna Dewsnup, and she's going to talk to us all about advancing technologies and different types of technologies.

(Applause)

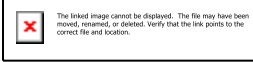
SHANNA M DEWSNUP:

Also, we just found out that it is Robyn's birthday, so everybody, wish her a happy birthday! ... Green button or red button?

OK, I'm going to skip ahead a little bit.

I'm going to give a brief introduction to myself. I started out in audiology as a mother, actually, without my son's audiologist was crazy. They diagnosed him with hearing loss, and I, of course, was very much in denial and did all of my own home hearing tests with banging pans and making lots of noises and telling her all the time, "I think he hears me just fine."

So, after I got past the denial stages and accepted it and think about how we can move forward, he was fitted with hearing aids at six months, and I decided to go back to school for audiology.



In audiology, I thought, "How are we going to help him hear his absolute best so that he is the most successful that he can be throughout school and throughout his life?" I had no idea that the Usher diagnosis would be coming down the line at that time.

So, when I was in my grad studies, I was studying genetics, and all of the Usher syndrome checkboxes were just checking off, and I was like, "Oh my God, I think he has Usher syndrome." So, I kept pushing to have his vision tested just to see, you know, does he have it? Am I just paranoid? Do I think he has it because I study genetics?

But he finally was confirmed with Usher Type 2A. So, knowing there was a vision loss component, I really had to focus on technology, and that is kind of my passion, staying up on the current technology and the brands and devices that I feel like work the best.

In our practices, we work with all of the brands, so we are not brand-specific. Hopefully, this is kind of like speed dating breezing through technology in a 15 minute box. If you have questions afterwards, feel free to find me.

I'm not paid by any of the manufacturers, so this is just purely my opinion on the technologies I have found to have good benefits or people that have the vision loss component with it.

So, there are different types of hearing loss: mild-moderate, severe-profound, and there are different types of devices that are appropriate for the different types of hearing loss.

Typically, hearing aid users do fairly well until they get to more of the severe to profound range, and at that point, they are usually starting to look more toward cochlear implants.

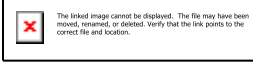
Common complaints. I'm sure a lot of people in here that have hearing loss can relate to just not being able to hear well in a noise. Conversations in cars, overrides, maybe you can't hear the driver if they're trying to talk to you, not knowing which direction sounds are coming from. If you are walking outside, the cochlear implant or hearing aids ability with directionality can be difficult. I'm sure everybody here has experience this.

There are a lot of options out there for hearing devices, whether that be traditional hearing aids or cochlear implant technology. There are about 8-10 brands. Some of them have multiple labels, so some companies have a certain brand, but then, it's also private labeled by other companies, which means that they are locked, so if you have a private-labeled hearing aid like a BellTone, MiracleEar, those devices can typically only be programmed by the places you are going to and not other practices. If you are ever in a situation where you need that device to be adjusted, you have to find someone in a similar type -- a similar-owned clinic, otherwise, they won't be able to connect to the software.

The ones that I have up your are the main manufacture names, the name brand. Those are the ones that are typically not locked and can be programmed by any provider.

Then, there are the three cochlear implant brands right now. In the US: Cochlear, Advanced Bionics, and MedEL. Oticon is outside the US. I think they are trying with the FDA.

One thing that a lot of people don't know is that cochlear implants have a hearing aid



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

component to them, and all of the manufacturers have this. So, the nice thing about this is if you have good hearing in the low frequency range or you still have fairly good visual hearing but the high-frequencies are what I missed, meaning you have kind of lost her ability to hear women's voices or higher pitched sounds, cochlear implants are a great option if you still have the ability to hear the low-frequency range.

There are things called hybrids that have a partial hearing aid component and a partial cochlear implant component.

I'm good to breeze through this. Cochlear is one of the cochlear implant company. They have a variety of accessories. They have devices that fit on the ear or off the ear. If somebody doesn't want to wear it on the ear, they can wear it so (indiscernible). They have connection for Bluetooth with your phone now. They have a lot of accessories.

After the presentation, I would definitely suggest you guys visit the tables for the cochlear implant manufacturers.

Accessories are huge, and it surprises me that people don't use them. Accessories are devices that are made for all of the hearing aid brands and cochlear implants that enhance your hearing even more when there are challenges in different types of listening environments.

This is the other off the ear cochlear device. They also have waterproof capabilities so you can wear them in the pool and still be able to hear people if you want to go to the lake or hang out in the hot tub or something. You can keep it on and have conversations with the people around you.

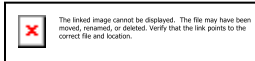
Phonak is another one that works with Advanced Bionics. Advanced Bionics is the implant company. If you have a Phonak hearing device, the kind of work hand-in-hand, so you can have streaming from Bluetooth go to both devices at the same time. You don't have to just stream it to one ear and out the other air.

Their newest device is great. It's called the Marvel, and they also have that hyper component as well. They work with certain other devices, so I will get into that in a little bit.

MedEL is another one. They have one for on the ear and off that year. They also work with the Roger devices, so you can use the microphone capabilities and FM devices. All of them have rechargeable batteries, and they all have waterproof sleeves that you can use in the water.

So, the top four hearing aid brands that I tend to lean more towards with people is Starkey, Oticon, Phonak, and Resound. Starkey is great because they are the only American-based manufacturer. They have a new product that has artificial intelligence. They have accessory devices like microphones that you can have your companions wear when you are at restaurants. They have a really great table microphone that is new and is quite a bit cheaper and more affordable than some of the other Roger devices through Phonak.

They also pair with the OrCam, which is an assistive device for people that have vision loss. It helps to read what is on the paper, and it reads it through the hearing device through your ear. It kind of reads to you what you are looking at.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

They have custom ear molds. The ear molds are pretty powerful. Somebody who has a pretty significant hearing loss can still utilize the smaller, behind-the-ear style because most of the power comes from the piece that's in here.

Oticon is one of the hearing aid branch. They have a really strong power behind-the-ear hearing it. It's actually a bit stronger than some of the competitors when it comes to people that need significant amounts of volume. If you are using a ear mold with a behind-the-ear, does have a pretty range if you are one of those that are on the fence with the cochlear implant.

All of the devices can be programmed or ordered to have their tele-coils activated, which is something that have been really useful, and some people have been using better to connect to the microphone devices for the streaming. That is something that most of your provider should be able to turn on. It's just a program that they can add on your device so they can connect to things.

Oticon also has accessories. They have a microphone, TV streamer. The parity or phone. The nice thing about the ones that parity or phone is if you use Apple watches or if you use GPS, it actually can stream everything through Bluetooth to your hearing devices so that you can hear if you aren't able to see very well. You can have it talk to you.

Phonak is one of those brands that I was talking about that does work with Advanced Bionics. The nice thing about these products is that with Usher, sometimes people are kind of on the fence with cochlear implant candidacy, or some people might have an implant on one side and still need a hearing aid on the other side. Phonak is a great brand that works in unison with Advanced Bionics.

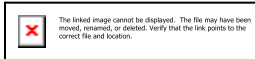
They have all of the same accessories, so they can all be used with the furniture in it. They also came out with a waterproof hearing it. They are the only manufacturer that has a hearing aid that you can actually swim with, and the receiver that goes on the end of it can actually -- you can have it be open and still go underwater and come out, and it will still work. It's the only one that I know that is not only water resistant but waterproof, and it is called the Phonak Life. I know that for people who have enough hearing loss, being in the pool with friends can be challenging, so if you have to risk taking that device out or getting it wet to keep it in your ear, that's a nice option.

They also have the same Bluetooth capabilities and connections with accessories.

ReSound is one that works together with Cochlear. Typically, if somebody has a Cochlear-branded implant, they can get a Resound device, and this streaming can go to both ears. They all use the same device with streamers as well, so if you had a Cochlear device, it will work with the compatible ReSound device.

So, I wanted to breeze through that, but if any of us have questions or are not sure, feel free to come ask me. Like I said, I'm an audiologist. I love focusing on technology. If you don't use accessories, I would definitely visit the cochlear implant manufacturer's tables because they have a lot of stuff here and can show you what it is. That's meant to really enhance your listening experience with your devices.

That's it!



(Applause)

ASHLEY BENTON:

Hello, everybody! My name is Ashley Benton, and I'm a consultant with the National Mentorship Program. I'm so excited to have the opportunity to introduce Rebecca Alexander as our next presenter. I just met her for the first time yesterday, but I am so thrilled because I felt like I already knew her from reading her book, 'Not Fade Away'. I loved reading it. It was full of humor and pointed information about her journey through life.

And, you know, some people were like, "Oh, don't read it. The deaf-blind community has changed." But I'm telling you, it doesn't matter if the deaf-blind community has changed! You need to go ahead and read this book. It is such a beautiful story about our journey that connects everyone.

So, Rebecca is an author, psychotherapist, and she is full of energy, she's vibrant, she has so many different things. So, I would like to invite Rebecca to come up and present for everybody. Thank you so much!

(Applause)

REBECCA ALEXANDER:

Oh, hi! Nothing more fun than trying to find a microphone and as a visually impaired person. You can hear me OK? I'm Rebecca Alexander. I want to thank Ashley for her introduction. I'm a huge admirer of all the work she does for the deaf community.

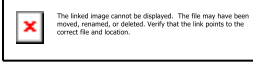
I'm here to speak about mental health. Yesterday, I presented for a little bit and it was much more in-depth, so I'm going to do my best to address some of the most common themes and issues I hear in my practice as a psychotherapist.

I want to be sure that if you need or would like to connect with me after the fact after this more abbreviated speech, that you know that you can. If you have a pen, sometimes, I think unfortunately the best way to reach me is through social media because I have an assistant who can alert me and let me know. That is @reb_alexander. For what that's worth.

The themes that idea what specifically is a person not only living with Usher syndrome but also as a mental health professional varies significantly. But most importantly, what we see is a perpetual dealing with a sense of grief and loss, and so, oftentimes now, with the Coalition, we have really been working tirelessly to find different providers and different areas who specialize in Usher syndrome, hearing loss, vision loss. That can be tricky because our community is quite diverse as well. We have people who are culturally deaf or are raised in hearing family. It runs the gamut in terms of the type of providers we need.

What I recommend for people, while you are trying to find some the who is most specifically able to help you or a loved one deal with some of the issues that present when you are dealing with mental health around Usher syndrome, I suggest you look for somebody who specializes in grief and loss, specifically, complicated grief and loss.

The other thing that I think is more important, just as a psychotherapist without making it too



general, is that I often hear people talk about the future. They talk about their fears, they talk about their anxiety, their depression that is related to not knowing what to expect, not knowing what life will be like.

We all, as human, beings do this. We live in a black-and-white mentality of right or wrong, good or bad. It's either this way or that way. I think those of us in this room, no matter whether you live with Usher syndrome, whether you have a loved one, child, spouse, significant other, family member with Usher syndrome is that it's very gray. Depending on the environment you are in and who you are with, your ability to communicate, whether it's through hearing or vision or tactile sign or ASL, it can vary, and that is what makes it so gray.

You may feel, someone with Usher syndrome, much more high functioning in certain areas that you are familiar with based on what the environment is like and the lighting. So, it's the gray that we really need to work on developing tolerance and comfort for.

I want to say that that's for people with Usher syndrome, but that's really for everybody, all human beings, being able to develop tolerance and comfort with the gray.

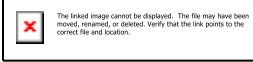
What the gray represents, really, is not just that there is a flexibility. There is an ability to be able to navigate and be flexible and able to adapt to whatever the circumstances or the environment is that you are in. It's also about uncertainty. Gray is sort of this universal color and sign and belief around uncertainty, and because of that, it brings us to the most important point, which is being present.

So I come up myself, just like anybody else oftentimes confined at night or certain times where I am left to, you know, my own thoughts and I'm not completely preoccupied with all of the busywork of my practice or having to attend to other people's needs, that it's easy to get lost in that future thinking of what things will be like. It keeps us from being able to be present, to really be with the people who are in our lives now, to focus on the things that we have and that we can do now.

And while we do want to be able to plan and know what services are available, I really want to impress upon you how important it is to be present. What that means is not only practicing mindfulness — we hear mindfulness, meditation, all these things that sound lovely in terms of what they are and what they represent, but what does it actually mean to practice mindfulness?

So, mindfulness and meditation are actually two different things even though they oftentimes become synonymous. Mindfulness means that when you are present, for whatever it is that you are doing — and I mean something as simple as sending an email — that you are focusing on that email, that you are focusing on the communication you are having with the person directly in front of you (if it's not email), that you are allowing yourself to be present for whatever the activity is doing.

Now, this doesn't come naturally for most of us. So, when you find yourself starting to daydream, starting to concern yourself or worry about the next three things that are on your agenda or the future and what that might look like for you or for your loved one, I want to encourage you to recognize that moment and bring yourself back to the moment, because it takes practice.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Now, what if in the moment, were feeling tremendous sadness, feeling grief, feeling a sense of overwhelm? That means that you need to be present for those emotions. You need to allow yourself to feel the grief, the loss, the uncertainty. If that means crying, which I do regularly because I am a human being like everybody else, then you need to allow yourself to do that as well.

Why we need to do that is because when people ask me, "How are you able to maintain such a positive or upbeat attitude?" well, most people see me for a very short period of time when I am in that positive or upbeat attitude. I experience the full range of emotions as a person living with Usher syndrome, as a human being, as a psychotherapist. When I do this, it allows me to be completely present for all of the great emotions that we can experience, too.

One of the things that I love most about people who are in this community is that we are some of the funniest people I know. Maybe that is a bit biased to say, but part of the reason why is because to deal with the type of loss that we have to deal with, to deal with grief, to deal with the types of circumstances that come up with us, you must have a sense of humor. You must allow yourself to say, "I couldn't even make this up if I tried."

You need to allow things to roll off your shoulders sometimes. That doesn't mean all the time, but you do need to allow yourself to feel your full range of motion so that you can be present for even the great things that happen in life.

So, that's one of my recommendations.

There's a few things that I use, and I'm happy to make recommendations to people for different types of meditations. There are different things you can use, but it is different depending on different needs, how you accept information. I have once for people who are auditory, signers, or even tactile signer. I'm happy to share that with you.

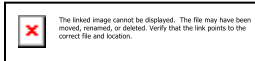
There is a meditation that I listen to at night, and I love it. It is called Hollow Sync (?). I love that. It is 30 minutes. And I know when you get there, you think, "30 minutes? I can't do 30 minutes." But you would have no problem scrolling on your phone or doing anything else for over an hour.

It's important to keep that in mind. It's not intuitive for you now, but it becomes intuitive when you practice it.

Those are some of my immediate recommendations, but I do want to also mention just quickly, it's important to be able to share resources with each other of what you have found to be helpful for your own mental health, what you have found to be helpful in terms of resources or providers. That way, we can all be sharing the information. I think that's something that we lose. We lose this sense of comfort with talking about mental health, and it's something that I think if there's one thing that has brought mental health to life, it's COVID, if nothing else. We have all faced issues around mental health.

The last thing I wanted to mention is an issue that's a bit more taboo, and I understand that there are a lot of opinions and feelings and thoughts and differences in beliefs around, but I want to share both my clinical and personal opinion around us. That is about medication.

This is one of the questions I get very commonly, and it's not something that people like to talk



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

about openly, about psychotropic medication, which sounds like a very sophisticated, scary word, but it actually is not that sophisticated or scary at all.

That's talking about SSRIs, which are antidepressant, and anti-anxiety, like Lexapro, Zoloft, etc. You name it. There are as many medications as are needed.

What I want to say about these medications as I see them as tools. I don't see that going on medication means that your life now is so completely out of your control that you can't handle things and "Oh my gosh, I need to go on medication." I think we can sometimes feel like I'm "If I have to start going on medication, that means something is really wrong."

I think people start to consider medication once they are -- if it is something that they may benefit from, once they are already not able to function in their lives the way that they were before, when their fear has really taken over, when their anxiety or depression has paralyzed them. And so, then, we are having to deal with the issue of getting them out of bed or out of that stuckness to even be evaluated.

So, in many with, if you start to recognize some of the signs of feeling like you are participating in your life the way that you did before, many of this, yes, is because you need to be talking about these issues out loud. You need to make sure that you're not bottling it all up.

And by the way, when I say this, it's not just for people with Usher syndrome. It's for caregivers, meaning family members, spouses, sisters, brothers, loved ones. These are all people that need to seek that help and that treatment, whether it is a psychotherapist, which is what I am; whether it is a psychiatrist to be evaluated. Being evaluated by a psychiatrist doesn't mean that you are going to be taking medication. It's just a better way for us to see where you are and whether you might benefit.

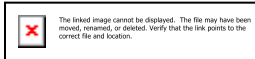
What I found is that people who take medication, when it works, and it often does... It's not a magic pill. It doesn't make anything go away, but it makes you start to feel more like yourself, more like the part of you who is able to tolerate and manage difficult circumstances.

So, I just want to put that out there as something we should no longer be so afraid of, and just know that it's simply a tool and that it doesn't have to be forever but that it can be something that can be helpful as you are going through a particularly difficult time of transition.

Lastly, with about one minute left, I want to really stress something I brought up yesterday in my session, and that is for caregivers.

When someone comes into my practice, and specifically, for Usher syndrome, and they are the only one seeing help, we can be carrying the entire weight on her shoulders. If you are somebody who cares for or is responsible for or has a major role in the caretaking of somebody with Usher syndrome, you must practice self-care. You must seek therapy, if that's necessary. You must seek all the things that help you stay who you are and not just as a caregiver. If you don't, you will end up living with a lot of resentment and find that you are not liking yourself or knowing who you are anymore.

So, that's it! Thanks, guys.



(Applause)

JULIA DUNNING:

We are going to take a quick 20 minute break and be back at 3:30 for our community panel. I will let you guys go now, and we will see you back here at exactly 3:30, alright?

***** BREAK: RETURNING AT 3:30 PM CT *****

REBECCA ALEXANDER:

We would like to call everyone in to sit down and join us for this panel discussion. OK, we can get everyone to come on in and finish your conversations or continue them after the panel. I want to ask first if there is anyone in the audience who needs me to wear a system.

If there would be anything that would be helpful for anyone for me in terms of wearing this. Remember, I'm a visually impaired person looking around trying to see if anyone needs me. It would be better for you to come up. (Pause) No? OK.

Welcome, everyone. I am Rebecca Alexander. I am a psychotherapist, another, a disability advocate, an Usher syndrome... live-r. (Laughs) A woman living with Usher syndrome, type 3A.

Today's panel, I am excited to be moderating because as we know, the Ushers community is vast or very broad. We come from not only different parts of the country, the world, we come from very different experiences, some very much shared and others that we are still learning. So, I really want this to be an opportunity for us to focus on the variations and the ways in which we live and thrive with Usher syndrome.

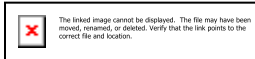
Because I think often times, when you get a diagnosis, at least at first, there is a whole process of trying to wrap your head around what that means. What life will look like. Sometimes, we miss out on all the incredible parts of living your life with Usher syndrome. Yes, it is very difficult. But it is also incredibly meaningful. I'm delighted to have in our panel today Trevor, and Becca, and Lorrie, and Roberto, and Hayley.

What I would like to do is just present questions to the group. I want to leave a little time towards the end to be able to open it up for questions. I suspect there will be things that are shared or said that may resonate with some of you and you may have questions about.

I will make sure we have time for that. The other thing I will let you know is we will take breaks when we need to quickly for changing interpreters. So, I just wanted to give you that heads up.

So, I would like to start this conversation and I thank all of you for being here.

What I would like to know from all of you is, as much as we all live with Usher syndrome and we go through all of the trying to navigate a condition like this in a world that is not really set up for people who live with-deaf blindness, what was a time or an experience that you had that really felt like it was pivotal or where things started to change for you? Or where you were really able to see things from a different perspective than what you may have previously felt or thought about Usher syndrome?



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

I should mention that Trevor, Becca - I do not know Hayley if you have Usher syndrome? Yes? OK. Lorrie is... (Pause) I do not do technology, I just talk. OK, thank you.

Great, thank you. For the fifth time, Lorrie is the only parent on the panel. OK so, did you guys run to the question or were you all focus on Lorrie being a parent?

(Laughter)

REBECCA ALEXANDER:

The question is, can you share with us a time or in your life... We can talk about your experience and how you were raised. I think it would be more meaningful to talk about those times that were significant, that were poignant, that were life-changing, if you want to call it "hot moments," the time you felt that transition of the way you viewed your life with Usher syndrome or things that may have been meaningful to you and living with Usher syndrome.

Why don't I give Trevor the opportunity to share?

TREVOR TURNER:

I just thought of something. I am very happy about that. For me, it was actually during the height of the pandemic. In 2020, I had just left my job. I was kind of down on myself and wanting to connect with other people, but we were all separated and all in Zoom.

The positive thing about the whole Zoom revolution is that, it actually allowed me to connect with a lot of other people with Usher syndrome.

And you know, I have tried very hard. I will be very honest and open. You know, I have tried very hard to find a good therapist to talk to. It was very difficult during the pandemic. Everyone wanted a therapist. When I did finally find a therapist, we couldn't connect. Because they did not understand the disability perspective.

One time, we organized a Zoom event for millennial's with Usher syndrome. We all got on zoom and started sharing our stories. It was so cathartic. So cathartic!

Just to be able to talk to other people, understand other people, and hear their stories. "I can relate to that." "They said the same thing about my story." That is when I realize I wanted to get more involved with the community. That is why I agreed to speak, be on this panel, and all of this stuff.

I find that connecting with people who have Usher syndrome so much better.

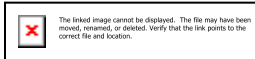
REBECCA ALEXANDER:

Thank you, Trevor. I want to give Hayley and Roberto the opportunity to weigh in here. I need to make sure I give the right interpreter the right microphone.

HAYLEY BROADWAY:

Hello, everyone. My name is Hayley. My thoughts on that are, just trying to recognize the change that occurred for me in 2014.

And then that was the time when I went to CBEC, that was probably the first week when I was



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

trying to figure out these changes that were happening in my life.

I felt like there was a new direction. I wanted to be an educator, but the team I was working with thought I could not teach. So, I had that same concept that they thought of as well. That I cannot be a teacher.

I went to CBEC in Washington, DC. That is the first time I experienced being seven individuals were successful while being deaf-blind. They have families, activities, I met children who are deaf-blind. That is where I met Roberto for the first time. Years later, him and I have become very good friends.

We were closely together often. That was my experience with that.

REBECCA ALEXANDER:

Thank you, Hayley.

ROBERTO CABRERA:

Hello, everyone. My name is Roberto. I guess there's a few defining moments for me. First off, my parents are also deaf-blind. I am actually a third-generation deaf-blind individual.

So, I inherited my deaf-blindness from them. But I would say that there was some resounding moments that happened, specifically as we noticed the dynamics of those individuals, my parents and myself.

Also, the relationship we shared. Of course, one of touch. I have friends as well that had invited me to partake in this conversation that was happening strictly through touch communication. Not just that, but for them to make physical contact with me, specifically on my body, my torso. The reason for that is because how important, how vital communication is to us, the importance of having that dialogue conversation where both individuals are engaged in the conversation. It was not until I reached that moment that I discovered pro-tactile was life-changing for me.

REBECCA ALEXANDER:

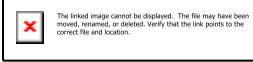
Thank you, Roberto. Before I move onto the next question, Lorrie, Becca, if there's anything that comes to mind. That is a no from Becca...

We might move onto the next question which is, "Living with Usher syndrome in your community or where you are, what would you say you want people to know most when -- what have you found to be most helpful when you are communicating or navigating with people in the world who are not as familiar with deaf-blindness? How have you found or what have you found to be most effective in being able to communicate through needs or what your circumstances are. That you would recommend for other people to consider trying when they are out in the world and not in a specific situation like this where we have so many people living with Usher syndrome in one place."

And because you are not raising your hands, I'm going to pick on you. So, Becca?

BECCA MEYERS:

That is a good question. In my experience, I am a very vocal about what I need. I am always advocating for what resources I need. I tell people what I need. For example, growing up and



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

swimming with my swim coaches, because I have had a couple of swim coaches along the way, I would sit down with them and I would tell them, "Hey, I cannot hear in the pool. This is the best way to communicate with me."

For example, he would write things on the whiteboard in black marker so I would be able to see what he is saying while in the pool. Or I would put my ears on after practice. Things like that. Having an open dialogue, advocating for myself so that both the support system and myself can just enjoy life.

It just makes it easier, honestly. That is what I found over the years that has helped me.

REBECCA ALEXANDER:

Thank you, Becca. I think often times as humans, we would love nothing more than people to be mindreaders. Of course, as a psychotherapist, if everyone was a mindreader, I would be out of a job.

I want to really stress the importance of self advocacy. Right? I am wondering for you, what was it like to have to develop that self advocacy muscle and Lorrie, I want to pose this to you as a parent, what was it like for you developing that muscle?

LORRIE JONES:

I think I am still developing that self advocacy muscle for my son. Because he was nine years old before he was properly diagnosed with his hearing impairment. And he was 24 when he was diagnosed with USH2A. He is having to learn the Usher syndrome part of this.

But, he has always been pushed, I pushed him up from the time that he was young that he could do anything and I never let him be lazy.

I never let him say, "I can't." I did everything, he was at the DuBard School for Language Disorders at the University of Southern Mississippi. And I always call that the "Yale of language disorders" (Laughs) because it was so difficult. If you really did the things they wanted you to do, you would go home and you would do school at home, even on Christmas Day. That is what we did.

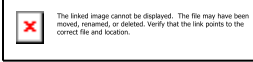
To develop him to push himself, I had to do it with him. I had to show him what to do by example.

Even reaching back to when he was two years old, I was pregnant. I was sick the whole time. Climbing under -- I remember climbing under tables and pulling him out when he was two years old and teaching him and the Association method, if any of you know what that is.

And just teaching him, "You have to do this. Never stop." He is pretty much that way now. I think that is what you have to do. You have to be behind him and you have to say, "You cannot stop. You have to always do what you can push yourself."

So, that is how you develop it. You have to always stand strong. When you turn around, you can go to the closet and cry. That is what you have to do (Laughs).

REBECCA ALEXANDER:



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Thank you, Lorrie. So, for many of us, we are all along that journey. All along that process of developing confidence and comfort with ourselves. Simply as human beings. But having Usher syndrome, particularly for those of us who are waived in hearing site of families, it can be more difficult, I think, to be able to figure out your identity.

We have so much pressure to feel like we need to fit in to the family of origin of how we were raised. Of being assimilated into the mainstream community or somehow welding ourselves.

To a certain extent, it can be very difficult. I think it also helps us develop that resilience. And ability to be flexible. I am wondering for you all now, how would you identify yourselves? Where do you stand in terms of your level of confidence or comfort out in a world of being able to say, "I am..."

For instance for me, Rebecca, often times when we have a disability, whether through family, or society, we feel the need to identify ourselves first as having Usher syndrome.

Yet, we are so much more than that. Right? So, what is it and how is it that you identify yourself? Or you see yourself? What is your confidence level being out in the world? And communicating who you are as a person, what your identity is.

Roberto, I want to give you an opportunity to chime in here.

ROBERTO CABRERA:

Wow, what a great question. I guess the first thing I will say is, I am deaf blind. I am also Dominican. I am queer. Each of those identities has its own experience to help me find as identities, experience them. They are all distinct experiences.

However, the culmination of those experiences comprise who I am. I had 4 experiences, and so on and so forth. They all originated from those three identifying moments. I mean, what I believe about deaf blind individuals -- I had my parents in my life, that is where my journey started as a deaf blind person.

Later, I started to realize I am deaf-blind. I do not see it as much of a diagnosis... Let's say 15 clients do not know their diagnosis. They have yet to be diagnosed. They are trying to navigate this life without a piece of paper that says what they are identified as.

That is when we can start to look away from that and look at the deaf-blind community. Having that collaboration, that hand to hand effort. That is really what helped me so much in my life. Making sure I was a part of the deaf blind community.

SPEAKER:

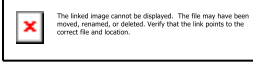
Can I go next?

REBECCA ALEXANDER:

Yes. Was that Hayley? Let's have Hayley go and then we will have a change of interpreters.

HAYLEY BROADWAY:

This is Hayley speaking again. I would love to know who here on the panel identifies themselves or labels themselves. Excuse me, I will let the interpreter say that again. When you speak,



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

would you mind saying your name before you say the comments of the interpreter can identify who is speaking? Not in the way that Roberto was talking about identity.

I do feel this critical connection. I identify as a woman. I identify as deaf-blind. I used to label myself as deaf growing up.

But then I found out I had Usher syndrome. And I really had that feeling of not knowing who I was. Being raised as a deaf person. My parents were fine with me being deaf, that was not an issue. My parents learned sign language, they would use ASL with me, which was fine.

As I grew up, at that point, I learned that I also had Usher syndrome. My parents went through another grieving process at that time, truly. We know that is normal in people's lives. I felt like their grief never stopped. It was ongoing.

My parents became obsessed, obsessive with cures or different ways things could be resolved and learning through that. It became through this handheld, overwhelming sense.

I can understand the research for tools, things we need. But, what can benefit us through this community. And the tools we have in the language and culture needs to be prioritize. So, that identity as an individual with Usher syndrome became a very medical view.

I felt that there was something wrong with me. I needed to go to a doctor to find something to fix me. My parents were trying to fix me. So, that kind of identity was not...

After I met a deaf-blind individuals, I realized that I could completely accept myself... I could be fully accepted for who I was. What a big difference it was for me after that. I encourage parents were here to instill that value in your children. You love your children for who they are, not focusing on Usher syndrome.

Or focusing on ways that they are not able to do things. Really prioritize what they can do and celebrate that in their lives. So, society, we know nowadays, can be very distant.

There is a fear of touch, it becomes taboo in society. We need to redefine what that means. In my general day-to-day life, I have a very tactile environment. Of course, I have some sight.

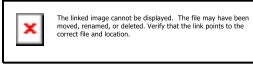
But, when I began to rely on my sight, I cause my situations to get harder. If I start with touch first, if it is a tactile experience and experience and that in the same way. For example, maybe we are using print on palm or different ways we touch.

And having this cooperation through touch, my situation tends to get better when I'm interacting with the outside world. It has been accommodating to me, instead of me trying to accommodate to the world, as usual. I wanted to share that as part of my experience, as well.

REBECCA ALEXANDER:

Thank you, Hayley. Let's give it a moment for a changer of interpreters. (Pause) Is this on? (Pause) OK, thank you.

I do want to thank Hayley for the reminder that for those of us who are sharing, anytime we start sharing, if you could say, "This is Rebecca speaking --" By the way, this is Rebecca speaking – I



would be very helpful.

I have many questions, but my next question is, what would you say is the difference between being autonomous and being independent? What is the difference between -- because this is language that comes up frequently in the deaf-blind community. How do you see "independence" and "interdependence" being different?

When we talk to our children, when we are raising kids, we often want to teach them skills of independence, but as you get older, if your circumstances change, you may find that being independent doesn't hold the same meaning if you rely on different senses in a world that doesn't accommodate those other senses as much as hearing and sighted people.

I hope I'm making sense here. Do you understand the difference between "independence" and "interdependence" was? Or what do you see the difference to be?

I'm going to give Trevor the microphone.

TREVOR TURNER:

Thank you, Rebecca. This is Trevor speaking. I think for me, independence was -- I just gave a presentation on how much I had the opportunity to travel the world when I was younger. That was independent, being able to go off to a different country by myself without any assistance or anything like that.

That has since changed. I wouldn't feel comfortable going to some places without my partner or anything like that. I think my independence really changed when I give up driving. I think for a lot of people with USH2A, S had the opportunity to drive and then had to give it up, and that is where you can really struggle.

Now, independence has changed to being able to figure out, with the resources that I have, navigating the public transit system, finding alternative ways of getting around. To me, that is the most important thing, being OK asking for help, because I think independence also means knowing your resources, and that resource might be asking your partner or asking your mom or asking your PCA to help you out in certain situations and knowing who those people are.

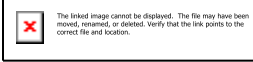
REBECCA ALEXANDER:

Thank you, Trevor. Becca, can we have you weigh in on this?

BECCA MEYERS:

This is Becca speaking. Trevor made some really good points, so I will just add a couple things. For me personally, right now, I'm figuring out how to transition from independence to interdependence because I'm 27 and dealing with deaf-blindness, it's very tricky, and it's progressive.

So, over the last, I would say... 10 years? I went off to college. I discovered my limitations. It really smacked me in the face. It was hard living on my own, and I struggled big-time. But I'm the youngest of three, so I have an older brother and an older sister, and they live on their own. They are independent, went off to college, and I wanted to do what they were doing. I wanted to follow them, to be independent, to do everything that they were doing.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

So, over the last 10 years, I have had to come and realize that Oh, I can't quite do that. So now, I'm transitioning into interdependence, and it's not a bad thing. It's a good thing!

Like Trevor was saying, independence for us is figuring out the public transit system, making our own doctors appointment, things like that that give us confidence we can take control of our life and move forward, and it's OK to ask for help. It's OK to lean on our support system because you just need a little extra help! That's perfectly normal. We are all humans. We all want to help each other. We don't need to suffer.

That's what I have learned. I'm still learning. I'm still letting go of what the definition of "independence" means and figuring it out.

REBECCA ALEXANDER:

Thank you. Roberto, do you want to chime in here on what "interdependence" and "autonomy" means to you?

ROBERTO CABRERA:

Yes, I do. I will let Hayley go first, though.

HAYLEY BROADWAY:

Yep, just making sure the interpreters are here! Again, this is Hayley speaking. I really love talking about autonomy. Roberto knows me; this is one my favorite topics.

ROBERTO CABRERA:

It is!

HAYLEY BROADWAY:

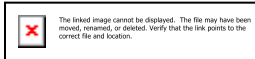
That is why he let me go first. I am still exploring it and what it means. I don't think I have the ideal solution, but whatever fits for whoever is in that situation is appropriate. We work with many deaf-blind individuals who are on this journey. They are identifying and accepting who they are as being deaf and blind, and so, there is a lot of misperceptions about what "autonomy" actually means.

They may think, "Oh, it's independence through being able to use my side," or it would mean, "If I'm going somewhere with a co-navigator or an SSP, like we used to call it, then that person would be a guide for us, cited guide making decisions for us." But we know that's not true. There is a transformation in the understanding of autonomy now.

We take the lead. We make decisions. We figure out what is the best fit for us, and then we have noticed within the community, Roberto and I, you may see that we started this panel with the interpreting team. Roberto and I lead the discussion about where the interpreters should be, how we should sit here on the stage.

Typically, people sit in one row, but if we do that, a lot of information is missed, and it's delivered only through ASL. We figured out together through this cooperation and co-navigation that the autonomy to the tactile experience of being here together. And as a deaf-blind person, we get the information first. We are making decisions based on the information we have access to care.

I like what Lorrie said. Oftentimes, people are brought to step back, not interfere, and I just love



The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.

TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

this concept of autonomy where hearing people don't make these decisions or take over and step in to help... But let us act first. Let us have that opportunity to make those decisions.

REBECCA ALEXANDER:

Thank you, Hayley. (Pause)

ROBERTO CABRERA:

This is Roberto. I will say that this topic is an important one, right? Especially as Hayley just mentioned, I can echo this sentiment: let us act first. When you think about it, the world is left from a sighted, hearing-dominant world.

When people say, "Oh, Roberto! You can still see!" That is not the case! I am as blind as a bat. But...

(Laughter)

ROBERTO CABRERA:

When I found out I was deaf, I wasn't completely blind at the time. That's about where I am now, right? It's not where I was, where I am now. And so, it took a lot of discovery for me to kinda find that, find where I was, and there were moments when I didn't know the answer to the question of who Roberto was.

I noticed, for example, when people would move, I would move. I would adjust when I shouldn't have. Then, an instructor, hearing and sighted instructor, has helped me to develop the ability to completely cut out that behavior.

Then, I had a deaf-blind instructor who was very expressed in orientation and mobility, and I have to tell you what a difference that made. That was exactly what I needed because I was able to find my own way. When orienting myself, I would know to go specifically to the right. If there was a sign there, I had a system in place that would help me to cross the street in a correct manner. Not a sighted way bit my way, the deaf-blind way. I would feel my way around and continue to navigate my environment.

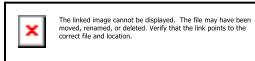
So, I'd get there. It takes me the right amount of time, and that can happen during the daytime or the nighttime, but I'm good to make it from Point A to Point B. That technique I use had nothing to do with whether I could see or not. It was simply that technique I was going to utilize. It's a tool could avail myself of, and that is where we see this concept coming to fruition.

So, that is what I will say about autonomy.

REBECCA ALEXANDER:

Thank you, Roberto. I want to pose a question to Lorrie. One of the things that I presented about yesterday was for parents or loved ones, significant others who really are SSP's/co-navigators for their family members. They may not have that name officially, but that is essentially what you become.

There is, oftentimes, this issue of the person with Usher syndrome in the family being the identified patient. And so, you by nature are a caregiver. When you take on the role of "caregiver," whether you are also caregiver, SSP, what happens is you start to lose yourself in



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

the weeds of your spouse, of your child — in your case, your child.

So, I'm wondering, what do you do to take care of yourself for self-care? How do you maintain your own identity and not just be an SSP or a caregiver and be Lori alt?

LORRIE JONES:

I sell on Poshmark. Do you want my link? (Laughs) That's what I do. I decided that I love to thrift shop and things like that. I love to just be able to get away for the day and grab some coffee. I decided, you know, "I think I will start selling on Poshmark because I like to go on Poshmark and shop!"

I told my husband, "I think that's what I'm going to do!" And I'm really busy now, so it takes my mind off of what I would be doing constantly -- which is constantly research, constant, constant, constant research. That's what I did before my son was diagnosed with Ushers.

He also has brain injury. He lost oxygen at birth. He also had severe hematomas in a terrible moment we had when he was six. That adds another dynamic to the Ushers.

It just gives me time to relax doing something that I like to do. I just found something that gives me an outlet.

When he was in eighth grade, I found a teacher who — I don't know why it was her, but it was her, and she gave me permission to relax and let the school handle his situation. I felt like before we moved to this school district, because we had moved into different states and everything else before, for some reason, this particular teacher... (Sighs) I trusted her, I trusted the school district. I felt like I could just relax, finally relax.

They got in... You know... We never thought that he would graduate high school, but he graduated high school through this district, and I finally relax. Then, of course, the retinitis pigmentosa started everything again.

But I do things for myself. I go and I sell on Poshmark. Not everybody does it, but I do. (Laughs)

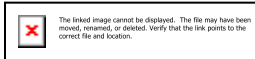
REBECCA ALEXANDER:

Thank you, Lorrie. This is Rebecca speaking again. I want to open it up for questions, but I also want to, before I do that, if you all an opportunity to share some of the funniest experiences you've had or things that have been very humorous.

I think sometimes, when we talk about Usher syndrome, there can be a lot of heaviness, a lot of deep thought and conversation, and yet, one of the things I appreciate most about having vision and hearing loss is that tremendously funny things happen to me or I do on a daily basis. It is one of the joys of having Usher syndrome. Some people may not see it that way. I very much see it that way.

So, I'm happy to share an experience of my own, but I don't think anyone cares as much. We would love to hear yours.

So, I am going to give Becca an opportunity to start and give the others opportunities to think of things that are funny and of that sort. Becca, if you can't think of one, I will let Trevor start.



BECCA MEYERS:

I can't think of a specific funny moment off the top of my head, but I do know that I joke about my deafness and my blindness a lot with my family. Outside of our home, if I'm joking about it with, let's say a neighbor on the street, they will look at me funny. They will be like, "Did that just come out of your mouth??" And I'm like, "No, you have to laugh about it! You have to release the stress."

Humor. You have to find the humor.

REBECCA ALEXANDER:

Thank you, Becca. That's a lot of it. It's a part of who we are, and so, part of how you embrace it is having it be a part of who you are. It is interesting. When you go out in the world, people don't know if they are laughing with you, and they feel like they are laughing at you. Thank you for sharing that.

Trevor?

TREVOR TURNER:

I feel like a lot of the moments at first sound kind of serious, but I just learned to laugh at them because they happened. I couldn't tell you how many times I have been kicked out of a bar or restaurant for being too drunk when in reality, I just tripped because I didn't see a chair.

One time, I was try to find a bathroom in a bar, and my partner was talking to somebody else, so I was navigating all by myself, and then I -- there was a random chair in the middle of the floor, and I just tripped over it and landed right in the bouncer's arms. He just grabbed me and pulled me out and said, "Get out of here!"

He didn't believe me when I said, "No, no! I'm blind! I'm blind!" I called my partner and he comes running out and says, "I can't believe he kicked you out. That's awful! You aren't drunk, just blind."

And I said, "Well, I'm a little drunk, but that's not why I tripped."

REBECCA ALEXANDER:

Thank you, Trevor. I appreciate that. Hayley and Roberto, I want to give you an opportunity because you are two of the funniest people I know. (Pause) I put you on the spot, didn't I?

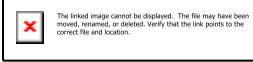
(Laughter)

(Multiple speakers)

ROBERTO CABRERA:

This is Roberto. Hayley is asking if I want her to tell her story first, but I will go first.

An experience I can relate is when I first came to discover my deaf-blind identity. Oh, I'm talking about games, specifically the game that I experienced. So... I remember getting confused as to where the wall was. The issue specifically was with my perception, right?



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

I remember my perception was off, my depth perception, so I would get very confused with the wall, tracking the wall and where I was going. Sometimes, I would be walking along the wall and would feel lost, like "Where am I?"

I thought that was an interesting phenomenon that that would even happen, right? That I am touching the wall and still having this experience. So, I finally learn something! Instead of walking along the wall and trusting my vision, I should put my hand on the wall and feel the wall so I know where I'm going! Instead of trying to see where I was going, let me just put physical contact with the wall so that I have a greater path to walk on.

HAYLEY BROADWAY:

Just making sure everybody is with me! That is one funny thing. We work together so much, and working with interpreters can be funny, too. That story that Trevor said about being drunk and people assuming you were drunk, that happens to me all the time, too. It's the same old story with me walking around and falling over and they say, "You drunk?" but of course, I'm not.

What Roberto is talking about is expressing the gains of the tactile environment. I remember one time, I was going to go stay in an Airbnb in Oregon, and I had a co-navigator drop me and my husband off at the Airbnb. We were dropped off. But we tried to get into it, and it was like we were navigating around the wall, trying to figure out where the entry was to the house, and I asked, "Is this a pink house?" I sent a text message, and I said, "No, I think the house is white."

My husband and I were searching through, and they were like, "No, no, no! It's very pink." And I was like, "What?! I didn't even know it was pink."

That's kind of like your story, Roberto.

REBECCA ALEXANDER:

Thanks, Hayley. We are going to take a moment for an interpreter change. (Pause) OK, thank you.

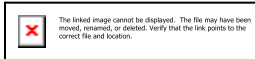
I would like to open it up for questions. I think we have a microphone that can be passed around, but I think that would be... We have about 20 minutes left here, and I want to give you all an opportunity to ask more specific questions you might have. And if not, I have a funny story, too!

OK, great. I can see Heather right here, and I feel good about that, so maybe we will have her...

QUESTION FROM FLOOR:

This is Heather. I have an interpreter voicing for me. I have a question for the panel. I am deaf-blind myself and really enjoyed seeing all of your stories and experiences from the audience. Now, I wanted to ask: since COVID, I know a lot has changed. So, especially in your daily lives, I'm curious what the difference is in all of your daily lives and what you think has been the new normal for you.

So, having that aside... How have you been able to adapt more as a deaf-blind person in your identity to be able to adapt to this new normal? What is your new deaf-blind normal? How would you explain that?



REBECCA ALEXANDER:
OK... Becca?

BECCA MEYERS:

It's a good question. For me personally, looking back over the last 2.5 years of COVID, I have become more reliant on technology. I really love technology. It's been able to allow me to connect with the world more, and so, when COVID had, I actually had the opportunity to go back to college because everything was virtual. I learned so much more in the classroom virtually because everything was accessible -- more accessible to me.

I have really become just more aware of technology advancements and things like that. So, that's one way how I adapted to this new normal is a deaf-blind person.

REBECCA ALEXANDER:
Thank you, Becca. Trevor?

TREVOR TURNER:

This is Trevor speaking. For me, I really -- there have been a lot of positives. I will just say COVID is really bad for the world, but some of the things -- at the end of the day, some of the things that we have been able to take and push forward, like the virtual meetings... For me, I don't drive anymore, but my role requires me to meet with lots of different legislators and activists all around the city and state of Minnesota, and prior to COVID, I don't think I would have been able to do that job because it was -- just require too much traveling too much trying to get from one place to another.

But now, because of the virtual environment, people are much more willing to meet virtually, and so, therefore, I can actually meet so many more people and do the job. It has opened up a lot of cool job opportunities and job functions for me.

REBECCA ALEXANDER:

Thank you, Trevor. I will take this question on as well. For me, having a narrow field of vision, when people now are -- this is Rebecca speaking. When they are more inclined to be further apart, to be able to have someone closer to the screen, whether it's for signing, I think I can see signs a bit better with the vision that I still use, and I have found that to be helpful.

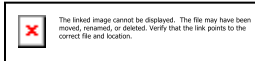
And if I'm reading lips, I find that I can be helpful just having their face closer to the screen.

Roberto or Hayley? Is there something that comes to mind? Otherwise, I think we have some other questions.

ROBERTO CABRERA:

This is Roberto. Something I think was so impactful in a positive way is just taking a moment to breathe. And how important is that breath? To reconnect, like, with my home, right?

Because typically, we have this system in place, right? And how do we now adapt to still using touch in a world that is not based on that anymore? Typically, people will leave the room, and I will start to notice people leave the room because I will feel them as they leave, right? And so, that we, I'm able to connect. Especially my home, that is one way I am able to connect.



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

But now, with my friends in every thing, I will tell them and say, "Hey, are you sick? Are you feeling ill?" just to make sure that our well-being is taken into consideration first. Now that that has been established, we can still have physical contact with one another.

It has taken more time, obviously, for us to acclimate to that, to a world that is still dependent on touch but with COVID. I found that activity or that asking first to be very beneficial.

HAYLEY BROADWAY:

Hayley here. Yes, Roberto, everything you just said, I completely agree. With COVID, when we started, we were like, "What are we going to do?" we never take a moment to sit and breathe. I'm glad we finally were able to have that moment. It is so important for us in life.

But also, when the pandemic started, it was earth shattering. They were teenagers, preteens, and both of them were in school at the time. They had to switch to virtual. My first son is special-needs. He has a disability, and he had to experience more ableism than we had ever seen before because of the environment. There was that disconnect of services they were trying to offer them virtually. How are we going to have PT and OT virtually? It's not beneficial for him. There was that disconnect.

Then, both of them were in school. That means are needed to be there to motivate them, to direct them in school, so over that whole year, it seems like they missed maybe the whole of fifth-grade!

And because of COVID and moving into sixth grade the virtual, and then seventh grade for them to be ready to go back to school in person, and then just that difference of having them back. It feels like we are back to normal because it is still challenging. As a deaf-blind mother, how do I direct the education of my children?

Also, another positive is I feel that I know more about my PT community now because there are some people in our PT community, and before COVID, I felt like they weren't ready to be part of our community because they had to really look at who they were individually and themselves and how they felt about touch and beliefs about that. We had to touch about touch being taboo.

COVID pushed it to the point where in the PT community, we have to understand who is ready for touch and who is not. It's fine, but there was a difference there. It became a growth. We saw more development in the... (Pause) Plurality, more growth in the plurality and the quality of the connections that we had. We felt that we could have that true interdependence.

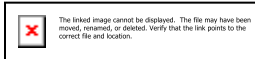
We knew who we could rely on and what strength one another might have. And so, there were a lot of positives. There were new connections with my family and the PT immunity.

REBECCA ALEXANDER:

I wanted to open it for another question. I think we have about nine minutes?

QUESTION FROM FLOOR:

This is Andrea. This is piggybacking off of your psychotropic medication discussion from your prior presentation. I read a great book called 'How to Change Your Mind'. I was curious if anybody has looked into using or gotten into clinical trials using psychedelics to treat anxiety or depression disorders. It sounds like a frontier worth exploring. I'm just curious if anybody has



anything in that realm.

(Pause)

REBECCA ALEXANDER:

Is that question for me?

QUESTION FROM FLOOR:

Sorry, I just kind of want to throw it out there if anybody has done that or is interested in that. It's just something to talk about because the book was really incredible about what it did help with, so I'm just curious for anyone out here. Not like a back alley place, but like a...

I dunno, there are some places that are looking at clinical trials, and it looks like it may help with a lot of anxiety or depression that may come with diagnosis. Just kind of thought I'd throw it out there. Not sure! Just try to make it more talkable. Anyways...

REBECCA ALEXANDER:

Thank you, Andrea. (Pause) Anybody else have anything?

KRISTA VASI:

I will read a question from a virtual attendee. "As a parent discussing Usher with their child, would you rather have known about it earlier or later? When do you think would have been the best time from your perspective?" I think this question is for all of our panelists. Thank you.

LORRIE JONES:

This is Lorrie speaking. It would have been great had we know when he was born (Laughs). Of course, that was not possible. As far as... One thing that I will say is that, although my son was not diagnosed until much later, I am happy that things have progressed to where they are now.

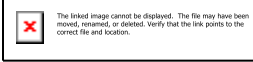
Regarding physiological hearing test at birth. That was not performed when my son was born. I am so happy that, as far as I know, most states, I am not quite sure, I have not checked recently - that babies now are receiving that at birth.

That makes me very happy. I do not want anyone else to go through what we went through. We would not have enough time all day for me to tell you. Regarding the retinitis pigmentosa, I did have both of my sons checked their entire lives.

Of course, it did not develop until they were 24 because both of my uncles had retinitis pigmentosa. Of course, they did not have Ushers. When my son started developing retinitis pigmentosa and started to lose his peripheral vision, I knew exactly what he had.

I would much rather have had him see someone much earlier. I would say if you suspect anything, personally, I would see a retinal specialist because my son's doctor said he does still not believe he has retinitis pigmentosa.

Even though he has been diagnosed properly. He said he does not look like someone who has retinitis pigmentosa. One thing that I do have to say is that, if you do not like the diagnosis, if you do not -- if you suspect something is not right, keep trying.



My husband knows, I think we had 11, 12 pediatricians in one spot. My husband is Air Force. We had like 11, 12 pediatricians, and I fired every one of them.

We were running out of pediatricians, so I had to find someone else. The last one was bingo.

So, just keep trying. As early as you can, just seek help.

TREVOR TURNER:

This is Trevor speaking. I can speak as someone who has Usher syndrome. As I understand the question right, when would be a good time to tell your child they have Ushers? This is a difficult question to answer because I'm not 100% sure myself.

I always knew I had hearing loss. That was not an issue. I always grew up with that. Never questioned or was concerned about that. I do not know if I needed in my childhood to know that I was losing my vision.

But perhaps maybe when the vision started deteriorating, the night blindness, which, for me, was around 14 years old.

If my parents knew, I think I would have been OK with them awaiting until I was 13 or 14 to tell me that. Otherwise, it can make it hard to enjoy the childhood. It can make it difficult to enjoy the present when you're always thinking about the future.

From my own personal view, I think that is what I would have wanted.

REBECCA ALEXANDER:

We have about three minutes. I don't know if there is any questions. If not, I am happy to chime in on that question. I need someone to tell me if there is another question.

QUESTION FROM FLOOR:

(Away from mic)...

SPEAKER:

Wait, wait, wait.

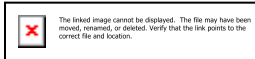
QUESTION FROM FLOOR:

Sorry. My name is Bill. I want to piggyback off of that question or comment. Trevor, you stated very well. Our generation grew up not knowing what Usher syndrome was until later on in life with technology and medicine.

Some of these parents are able to find that their kids have it at an earlier age. So, everyone has different way of approaching things. Basically what I wanted to say is, (unknown name)'s mom said it perfectly yesterday. Let your child do what they need to do.

Communicate with them. When they reach out and say, "I cannot do this anymore," find resources so they can keep doing it. I feel today's society is more of a coddle.

Every parent is babying their child instead of letting them live like we did, the way I grew up. I mean, I am 50 years old, and I am just fine how I grew up. I did not know what I had. I had



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

hearing loss, but my parents pushed me to do everything as a normal child.

I never let that stop me. In my opinion, I think if you know, talk to your child. Let them live their lives. Do not coddle them.

Let them learn from their own experiences. When they need help identifying the resources, do not say, "You guys have to do it this way because you cannot see." You do not know what their vision is. I did not know what my vision was until I started having night blindness.

Do not be too worried about the future so that we will not live our lives in the present, like Trevor said. Thank you, Trevor.

HAYLEY BROADWAY:

This is Hayley speaking. Just to add to that too, if you know there are various opinions about this, there are no right and wrong answers. But that, in my opinion it is that, you start as early as possible having these discussions with their children.

As they age, they can meet deaf-blind adults. They will understand as they go that many do not have a role model. They just have teachers. Or a deaf teacher. They never have an instructor who is deaf and blind themselves.

When I was 30 years old is when I realized my deaf-blindness. I wish I had identified it that much younger in life. Parents, I encourage you to explore your feelings around that because you often will have this awkward feeling.

Maybe as a parent, you recognize with your child that something is off. As they grow, they are in the deaf blind community. You have the thing where you see them falling at night. You know there is something wrong. Even the individuals who is deaf blind does not have a realization of why this is occurring to them.

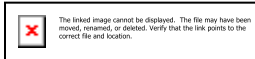
So, they will go to an eye specialist. At that time for me, I did not have an interpreter there. I like it see. So, we had my own vision examined. What they saw was that, my mom would say that I would always cry when this happened because I did not know why. I just did not know why this was happening --

Oh, no, no, excuse me. My mother would be crying. I had no idea. I would see my mother crying, and I did not know why until I was in high school age.

Really once I got that point in my life, in high school, was when I found out that I found one receipt in my house that was left there. That receipt said "retinitis pigmentosa." I was like, "What is that word?" I recognized it.

I called my best friend through the TTY, back in those days. And so, I had a relay operator and I was having a conversation with my friend. My friend worked in a library. I asked my friend, "What would that mean, retinitis pigmentosa?" She explained to me through the TTY what it was.

I cannot tell you how betrayed I felt. Because my parents knew and they did not tell me. I understand why now. But, I could not believe it. My brother is deaf-blind, I have an older brother,



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

that means I had to break the news to my own brother once I had found out what that was.

It was just -- he was 14. I had to find the courage to actually tell him. I encourage you to parents, be realistic. Your children are resilient. They will be able to adapt.

They will be able to recognize in themselves. They will be fine. Have them meet deaf-blind adults. Have them meet deaf-blind teachers. And people who would actually know that there is a future and life for them as they grow up.

REBECCA ALEXANDER:

Thank you, Hayley. I want to thank all of our panelists today for all your experiences and sharing with us, we have another panel coming in for kids. I think we need to make that transition now.

Feel free to come up and approach any of us if there are any questions you have. Thank you, everyone.

(Applause)

JULIA DUNNING:

I'm going to close things out. The first thing I will do is, I will do the last prize of the day. I will ask Rebecca to grab a name from the basket.

Virtual... Melissa Taylor! So, Melissa Taylor.

I'm going to put this down, Rebecca, in front of you.

I've noticed -- I'm going to finish up today, and then we have a very special presentation for you. I've noticed a theme that has been running throughout the day by some of our presenters, and we all know that those of you living with Usher syndrome are a community; you are a family.

And sometimes, I'm really jealous of Bella that she has such amazing relationships with people who are so similar to her in a way that I am not similar to her, and sometimes, I know I don't tell her enough how much I love her, but I do.

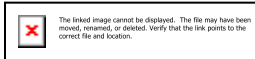
I know that there is another group of people who are "living" with Usher syndrome, and those are what I like to call "the Jacks."

My son, Jack, from day three was forced to jump in a car and take Bella to school. He has been to speech therapy appointments. His first word was "kitty cat" at about eight months. He has been to medical appointments and been to conferences.

And like some of you in the audience is, you are the Jack's, the dads, the moms, the friends. All of you are a part of this community: the Jack's.

I want to say — I can't stress enough — how important all of you living with Usher syndrome are, and how important all of "you" living with Usher syndrome are.

I'm going to close off before our amazing Ava's Voice kids come up to do a little presentation for you by saying thank you so much to the interpreters, the co-navigators, the SSP's, the CART



provider, the audio/visual staff, the...

(Applause)

JULIA DUNNING:

... (Laughs) Thank you! Our USH Partners: Ava's Voice, the Usher Syndrome Society taking the photographs. And Sarah and Carrie, our event coordinators. Nancy O'Donnell, who has been amazing, and we love her so much.

Of course, Krista Vasi! Who has been...

(Applause)

JULIA DUNNING:

We would very, very, very much love for all of you to come back at 6 o'clock to enjoy dinner with us, refreshments — two drinks! Two free drinks!

If you feel like you need a little time off, we can go into the quiet room, too. Bring your food in there. But please come. This is not just an amazing community but an amazing family, an amazing family! I would love a round of applause for that.

(Applause)

JULIA DUNNING:

And now, I'm going to introduce Carly Fredericks, who has been an amazing, wonderful, talented woman who has helped me so much with childcare for these events, to introduce her group.

CARLY FREDERICKS:

I really wasn't thinking were going to introduce me because I was good to give it to the kids, but thank you so much for your kind words, Julie. It's so important at Ava's Voice. Collaboration is really every thing. We are all a bunch of small organizations that wanted impact the community and provide collaborations for each other. This collaboration has truly been instrumental to the success of our program and connecting these beautiful USH Hearts behind me.

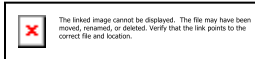
I'm not going to get emotional. I'm going to introduce some of our USHyouth to take over. You guys could actually go over here. That would be great.

SPEAKER:

Hello, everyone. My name is Ava, and I'm from Ava's Voice. As much as I take the time to present and raise awareness, after days like today, I'm at a loss for words. So incredible in such a huge impact to see the connections among us and meeting new people, so I would like to take a moment to introduce my new friends, Enrico, Brody, and Pauline. They are going to share a few words.

SPEAKER:

Hello, everyone. My name is Enrique. I just want to share my experience. It's so nice to have the opportunity to meet so many different kids from around the country and connect with other people with Usher syndrome. My brother is involved with the deaf school, and I met a main



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

stream school. We are the only two kids with Usher syndrome that I know.

SPEAKER:

Like Enrique, the only people I know with Ushers are my siblings, so getting the chance to hang out with other kids has been a very new and unique experience. I'm looking forward to next time.

SPEAKER:

For me, it has been comforting to meet other siblings that are in the same position as me, but more importantly, it has been great to make new friendships with kids all over the world.

SPEAKER:

Our USH Hangout program is for birth to 17 years old, and we have mentors of all ranges. Shout out to those taking care of our USHlittles! Now it's time to get it!

(Music plays)

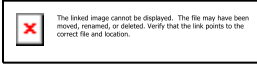
Right now, I need you to get real loose
Real comfortable
Grab your loved ones or your loved partner
And if you are by yourself, no worries
Just follow after me
Grab your sweetheart and spin
Take it to the left now and dip
Lean back
Let's have some fun
To the left, to the left
To the right, to the right
Now take your left hand and put it on your side
Don't roll your shoulders
Step and slide
This next part is my favorite part
Grab your sweetheart and spin around
Ho down and get it
Take it to the left now and dip
Take a sip
Now lean back there
It's simple, you can do it
Slide to the left, slide to the right
To the butterfly, have a good time
Around, round, round and round you go
It's time to show out right now
And take to the floor

(Applause)

JULIA DUNNING:

We will see you at 6 o'clock! Free drinks! 6 o'clock! I don't want to be drinking them all!

(Applause)



TCUSR-USH2022: General Session-(Ai-Live) (USTCUS0907A - Ai-Live Premium)

Live captioning by Ai-Media